Analysis of older adults' attitudes and perceptions towards remote patient monitoring assistive technology

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of
Master of Business Administration (MBA)
in
Hospital and Health Management

By

Swati Singh
(IIHMR-U/01/2019-21/1022)

Under the Supervision and Guidance of

Prashant Sharma
Associate Professor

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled "**Analysis of older adult's attitude and perception towards remote patient monitoring assistive technology**" is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

(Signature)

Name of Student: SWATI SINGH

Date: 29th June, 2021

APOLLO HOMECARE
-We are your family-

CERTIFICATE

This is to certify that Dr. SWATI SINGH in partial fulfilment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur has successfully completed her internship at Apollo Home Healthcare, Hyderabad during March 22, 2021 to June 19, 2021.

Apoorva Garg

Place: Hyderabad.
Date: 29/06/2021.

Dr. Apoorva Garg
HOD (Product and Strategy Department)

Apollo Home Healthcare Limited Hyderabad

Apollo Home Healthcare Limited

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CIN:- U85100TN2014PLC095340

CERTIFICATE

This is to certify that dissertation titled **Analysis of older adults' attitudes and perceptions towards remote patient monitoring assistive technology** is a record of the research work undertaken by Dr. SWATI SINGH in partial fulfilment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

Prashant Sharma
Associate Professor
IIHMR University, Jaipur

Date:

Dhirendra Kumar
Dean
IIHMR University, Jaipur

Date:

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I would be failing in my duty if I do not acknowledge with a deep sense of gratitude the sacrifices made by my parents and siblings and thus have helped me in completing the project work successfully.

Swati Singh

PLACE:

DATE:

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ABBREVIATIONS

CAGR- Compound Annual Growth Rate

HHA- Home health assistance

IOT – Internet of things

NCD- Non communicable disease

PCA- Personal care assistance

PGHD- Patient-generated health data

RPM- Remote patient monitoring

WHO- World Health organization

Chapter 1: Abstract

Background: The study on long term care patients using a remote monitoring device (RHEMOS) was done to know their attitude and perception towards remote monitoring health assistive technology.

With rise in elder population life expectancy rate globally, burden on healthcare industry has also raised up. The main challenges faced are acute shortage of skilled medical provider, overburdened health facilities, delayed diagnosis of illness, improper treatment modalities. Information and assistive technologies that allow patients to be treated at home, making the treatment process more efficient are potential solution to overcome these issues. Remote patient monitoring under umbrella of telehealth is a method of healthcare delivery which monitors patients' vitals remotely using information technology.

Research Question: What is the attitude and perception of older adults for remote monitoring health assistive device in Hyderabad?

Objectives of this study:

1. To study the attitude and perception of older adults towards using Remote monitoring device (RHEMOS)
2. To study perception of older adults for scope of Remote monitoring technology (Barrier/Opportunities) in future.

Methodology: A descriptive cross-sectional study was conducted for long term care patients of Apollo Homecare, Hyderabad. A purposive sampling data collection technique was adopted. 30 telephonic interviews were taken to collect data of those patients who were using RHEMOS device from past 3 months.

Result: Analysis of data was done by QDA miner lite software. The result obtained shows that 90 % of patient's or their family member were not aware about remote patient monitoring technology before it was provided from the Homecare. Most of the respondent showed positive response towards handiness of the device, agreed upon quick doctor intervention in care of emergency and less physical visits to hospital facilities. But few concerns were observed regarding device accuracy and reliability. Overall participants recommended if this device can be kept into affordable range and more awareness is engendered, this technology will be adopted more in future.

Conclusion: The increase in life expectancy has risen the challenge for healthcare system to provide overall care to elder population. From almost a decade information technology has been introduced in medical field to improve the health monitoring technique. Remote patient monitoring

technology is gaining an acceptability among older people suffering from chronic disease. Overall a definite attitude has been observed for using remote monitoring technology among RHEMOS device users under the study. The remote patient monitoring technology has a great scope in future if more awareness is generated among public.

Keywords: Telehealth, Remote patient monitoring, IOT, Sensor based technology, elder care, Assistive technology

Chapter 2: Introduction

Globally the proportion of elder people is increasing significantly, with rise in life expectancy at birth from 67.2 in 2000 to 73.4 years in 2019(1). With increase in ageing population there is increased burden on health care system to cater health care need of the population. The rise in ageing population has increased the prevalence of chronic diseases**.** Chronic disease which includes cardiovascular diseases, diabetes, mental health disorders and cancer are leading cause of disability and mortality globally. According to NHP, noncommunicable disease causes death of approximately 41 million people globally. As per WHO data, by 2030 death due to NCD will increase to 55 million if timely interventions are not taken to prevent it.

As there might be cognitive impairment or mobility disfunction leading to chronic disease conditions, the healthcare needs of geriatric population are different than the younger population. The pandemic hit had even worsened the situation for health care professionals. The main challenging issues face by health care industry are acute shortage of skilled medical worker, sudden rise in demand for healthcare services, difficult to monitor hundreds of patients, overloaded healthcare facilities leading to higher chances of cross infection, people with high-risk condition are unable to visit healthcare facility due to travel restriction and inopportune management of resources.

Therefore, several studies suggests that problem can be reduced by usage of information technology where patients can receive treatment at their homes and assistive technologies can be used to make the care providing processes more efficient (Brucksch & Schultz, 2018; Gard & Wikman, 2012). That is why the concept of Assistive technology providing personalized health care need at home environment is in demand. According to WHO Assistive technology enables and promotes inclusion and participation, especially of persons with disability, aging populations, and people with non-communicable diseases. As per the need 1 billion people currently needs assistive technology, which is expected to increase by 2 billion by 2030.

Assistive technology involves self-measurement of health parameters with an external care provider involved in process of sharing data. Assistive technologies consist of many different things for different people needs. It can be categorized into:

1. To provide support system or devices that helps people with disabilities/geriatric care, with no skilled medical requirements.
2. To provide support system or devices that helps people with disabilities/geriatric care, with skilled medical requirements.
3. Devices used for personal use that makes life easier for elder people/ disable people.
4. Home environment modification i.e., Smart homes concept that accommodate disability.
5. Telehealth delivery system

Telehealth delivery system is an approach of providing health care services to patients through electronic information and telecommunication technology. Telehealth includes telemedicine i.e., providing doctor patient consultation remotely, health education services and remote monitoring of vitals. The telemedicine market in India is expected to grow at a compound annual growth rate (CAGR) of 31% for the period 2020–25 and reach US$5.5b.(2) Drastic change in healthcare system globally has been observed during covid. The key factors in incorporating digital technology in health care is affordability, shift in demography, awareness towards health and government regulation laws for information and digital technology companies.

Remote Health monitoring also abbreviated as Remote patient monitoring (RPM) is a technology which helps to gather patient-generated health via sensor-based technology and enables monitoring of the data remotely i.e., outside convention by using software application on smartphones or tablets or monitoring computer system. RPM is used to improve quality of life in chronic disease patient as it incorporates analysis of physiological vitals, early detection of change in normal health stats and reducing chances of emergency visits to hospitals. It also provides real time data which helps in detection of emergency events of high-risk patients. Monitoring of patients have been possible because IOT. A continuous monitoring requires a reasoning engine that proactively employs data mining to corelate data from many sensors, estimate risk level and generate preventive actions to analyse the patient's bio signal in real time.

RPM is mainly working on following architecture:

1. A device with enabled wireless sensors that measures physiological parameters.
2. Through cellular communication sensors or wifi sensors can connect back to central database
3. A local data storage which acts as an interface between sensor and central database repository
4. A central database repository that stores data
5. A software tool or dashboard that shows the intervention alerts or treatment modalities based on data analysed.

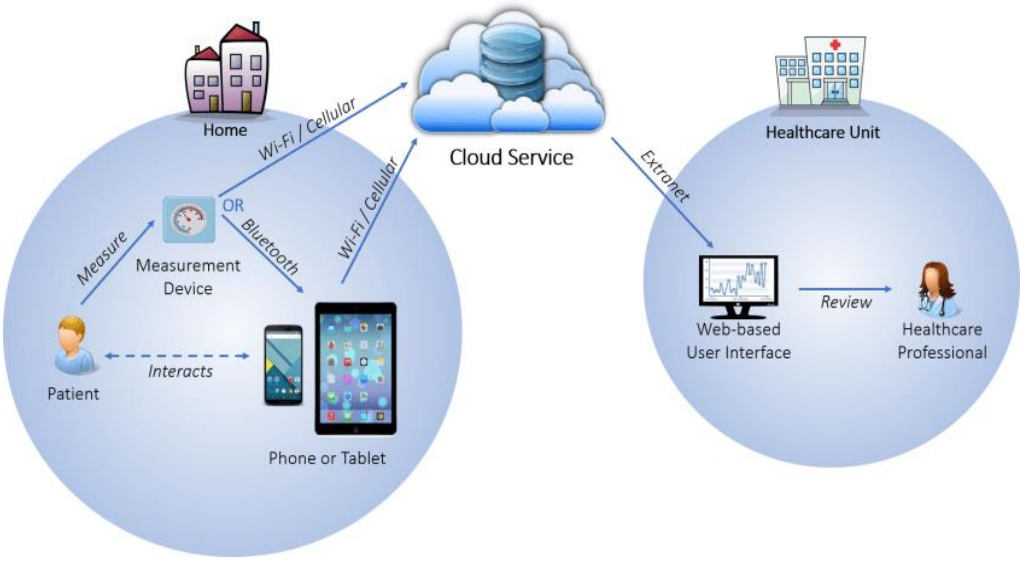

Fig 2.1: Remote patient monitoring technology

Advantages of RPM technology:

1. The remote monitoring technology provides a "contact-less" testing of health parameters between patient and medical assistants.
2. The time requires to check the basic vitals are very less as compared to conventional/traditional method setting.
3. It is a cost-effective device for those who needs a regular checking of the health status.
4. All the data is automatically uploaded to the cloud, so there is no human intervention and no margin for error.
5. Doctor or family member of patient have access to see the vitals remotely.
6. It helps in providing timely interventions which results in positive patient outcome.
7. Constant monitoring helps patient or their family member a mental satisfaction, especially for post-operative patient.

Based on the manufacture design, RPM technology can used to monitor vitals as blood pressure, heart rate, respiratory rate, blood oxygen, blood glucose, body temperature, ECG

Research Question: What is the attitude and perception of older adults for remote monitoring health assistive devices in Hyderabad?

Objectives of this study:

1. To study the attitude and perception of older adults towards using Remote monitoring Device (RHEMOS)

2. To study perception of older adults for scope of Remote monitoring technology (Barrier/Opportunities) in future.

This Study is to identify key indicators as advantages and disadvantages of RHEMOS Device for Remote patient monitoring among those patients who are using this device at their home from past 3-4 months as a pilot project. These are the patients of Apollo Home care who have been enrolled in long term nursing care service. The Homecare nursing services are mainly categorized as PCA care, Basic care, HHA care, Critical care where nurses are deployed to take care of patient health at their home site.

Chapter 3: Review of Literature

Author (year)	Study Location	Sample Size	Sampling Technique	Conclusion
Jonker, Leonie T. Plas, Matthijs de Bock, Geertruida H. Buskens, Erik van Leeuwen, Barbara L. Lahr, Maarten M.H.	Groningen	47	Observational cohort study	Older oncologic patients showed higher compliance rate of using the device and found post-operative monitoring device acceptable. (3)
Thanos G. Stavropoulos, Asterios Papastergiou, Lampros Mpaltadoros, Spiros Nikolopoulos and Ioannis Kompatsiaris(2020)	Switzerland	-	Literature review	IoT technologies are prominently wearables, as well as smart home sensors, cameras, microphones, and indoor and outdoor tracking. The major aims include assessment of cognitive state, frailty, and other conditions, as well as support, assistance, and prevention of falls(4)
Jeffrey Soar, Lei Yu(&) , and Latif Al-Hakim(2020)	Australia	537 studies were done for, 34 papers were selected for analysis	Systemic review	Mostly assistive technology has been accepted and used by older adults . To gaze the use of assistive technology acceptability more market demand research (5)
Valsalan, Prajoona Baomar, Tariq Ahmed Barham Baabood, Ali Hussain Omar	Oman			For remote patient monitoring system , IOT is new feasible solution(6)
Lakmini P. Malasinghe,Naee	India		Systemic review	Remote monitoring technique for heart ailments, nervous

m Ramzan, · Keshav Dahal(2019)				system, diabetes, and mental health were discussed. Also suggestions for future research was provided(7)
Ienca, Marcello Lipps, Mirjam Wangmo, Tenzin Jotterand, Fabrice Elger, Bernice Kressig, Reto W.(2018)	Switzerland , Germany, Italy	100		detailed knowledge on the clinical translation of IATs by exploring the views and attitudes of key health professionals in dementia and older adult care. Current opportunities and challenges of using IATs in the clinical setting(8)
Jarrett Evans, Amy Papadopoulos, Christine Tsien Silvers,Neil Charness, Walter R. Boot, Loretta Schlachta-Fairchild, RN, Cindy Crump, Michele Martinez, and Carrie Beth Ent(2016)	U.S	41	RCT	Monitoring technique can be and will be used among older adults with chronic ailments in their home environment(9)
Yong-Soo Lee, Filip Nilsson (2016)	Sweden	4	Qualitative Approach	Positive attitudes toward assistive technology has been seen among professionals. There were concerns identified and potential improvements that could be made.(10)
Evangelista, Lorraine S.		21	Survey	The use of RMS can potentially provide older patients with access

Moser, Debra K. Lee, Jung Ah Moore, Alison A. Ghasemzadeh, Hassan Sarrafzadeh, Majid Mangione, Carol M.(2015)				to health information and feedback and promote daily patient engagement, self- care, and self-efficacy(2)
Prakash Kumar (2009)	India	100	Survey	Majority of respondent lacked awareness of the device mentioned in survey form but were willing to use these devices if provided at affordable costs
Spinsante, Susanna Antonicelli, Roberto Mazzanti, Ilaria Gambi, Ennio(2012)	Netherlands	47	Survey – Quantitative approach	Remote home monitoring was considered feasible, usable, and acceptable by the older patients who participated in this study, as measured on the usability (SUS) and acceptability (NPS) scales(11)
George Demiris, Marilyn J. Rantz, RN, Marjorie Skubi , Myra A. Aud, RN, Harry W. Tyrer Jr(2005)	Columbia	15	FDG – Qualitative Approach	Participants had a positive attitude towards these technologies and identified application areas such as emergency help, detection of falls, monitoring of physiological parameters. Concerns were expressed about privacy and the need for tailored training.(12)

Research gap:

The studies considered for literature reviews were mostly conducted out of India mainly developed countries where IOT technology has been adopted a while ago as compared to India. The studies were mainly focusing on all sensor based home assistive devices. Of any remote patient monitoring assistive device usage study are very few. Most of the studies found are showing the result of attitude and perception of healthcare providers for remote patient technology.

This study was designed and conducted to know the specific remote patient monitoring technology in context with Indian patients and in particular users of Remote patient monitoring assistive device. Most of the factor involved in adaptability, usage and compliance of the device has been tried to incorporate in the study.

Chapter 4: Methodology

Study Design: Descriptive cross-sectional study

Study Type: Mixed approach (Qualitative and Quantitative both)

Study Setting: The study was conducted among long term care patients of Apollo Homecare, Hyderabad

Apollo Homecare provides elder care nursing services to patients who require nursing care services. These patients are categorized in to PCA, Basic care, HHA care, and critical care. Under a pilot project conducted by Apollo Homecare to understand the need and acceptability of remote patient monitoring technology among patients, a remote monitoring device termed as RHEMOS device is provided to patients to monitor their vitals at home.

It is a small portable, connected medical device which measures 7 vitals through self-administrated test and transmits the readings wirelessly to a Smartphone & to the cloud for doctors to view the readings remotely.

The 7 vitals which are recorded are:

- Blood pressure & Heart rate
- ECG & Respiratory rate
- Blood glucose
- Blood oxygen
- Body temperature.

Fig 4.1: Rhemos device

Nurse deployed at patient site records the vitals through RHEMOS twice a day and in case of any alarming situation. It connects to the Smartphone App via Bluetooth, collects & displays all health parameters on Smartphone and Monitor screens deployed at central monitoring HUB unit. The readings are shown with “High/Normal/Low” alerts and can be instantly accessed by doctor

remotely through cloud at Remote monitoring HUB. It displays historical data in the form of colour coded trends, for reference & analysis.

Study Duration: Duration of 3 months starting from 22nd March 2021 to 19th June 2021.

Study Population and size: Study subjects were those LTC patients who are using the RHEMOS device from past 3-4 months to monitor their vitals. A purposive sampling technique was used to select 30 patients of more than 45 years age.

Demographic characteristics and medical history were taken from the Homecare record.

A telephonic interview of was done to collect data via semi-structured questionnaire. Interview questions were asked to the patients' themselves or their attendant (caretaker) in case patients were not able to communicate. As most of the patients were comfortable in their native language i.e., Telugu, a translator was used for communication.

Sampling technique: Purposive method

A purposive sampling technique was selected as the RHEMOS device has been provided to 40 patients of Apollo Homecare as a part of pilot study. All these patients were referred from Apollo Hospital for Homecare services. All the patients were approached to be a part of study but included those patients who gave verbal consent for the study and those patients from where data were received constantly, yielding a participation rate of 75%.

Inclusion criteria: All LTC patients where nurses were provided training to use RHEMOS device, Internet access, written consent for device usage.

Exclusion criteria: All the LTC patients where nurses were not trained to use the device.

Data Analysis: Analysis of the data was done using QDA miner lite software. QDA Miner is a mixed methods and qualitative data analysis software developed. The open-ended questions were analysed via this tool. All the interview data was imported in form of transcript. For each question, a variable was given, and codes were provided.

For example, for the question - As you are using it now, what do you think about benefits of this device, variable generated was advantages and following coded were provided as under reading time, ease of use/ user friendly, less physical visit to hospital facility, Doctor's response, Regular health status update, Device functionality and no side effect on body. The responses from all transcripts for were later categorized into the codes they were falling into and analysis was run.

Chapter 5: Results

The study was conducted on long term care patient of Apollo Homecare Hyderabad during April, May, and June,2021. Overall Remote monitoring Unit was observed and various indicators as advantages, disadvantages, awareness for RPM technology, opinion toward future perspective was analysed. A semi-structured telephonic interview was conducted to have understanding about device among the users. Patient's characteristics considered in the study are given in Table 5.1.

Table5.1: Patient's characteristics

Variables (*n* = 30)	***n* (%)**
Age (years)	
45-60	8(27%)
61- 75	14(47%)
75-90	7(23%)
>90	1(3%)
Gender	
Male	19(63%)
Female	11(37%)
Highest level of education	
Primary school	4(13%)
Secondary school	20(67%)
Graduate or above	6(20%)
Current employment (yes)	2(7%)

1. **Awareness about RPM Technology before using it**.

Out of 30 patients only 3 patients were aware about this technology before using it. 90 % of patient's or their family member were not aware about remote patient monitoring technology before it was provided from the Homecare.

Among those who were aware about such technology all got the information from internet.

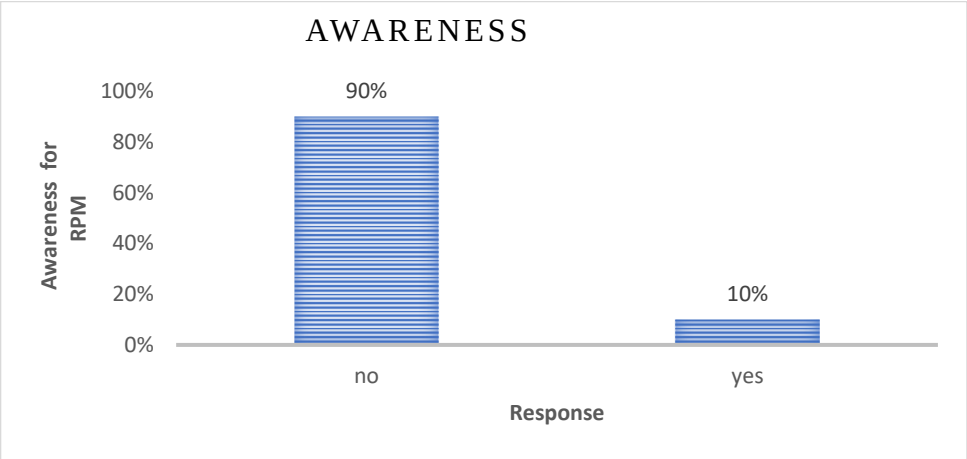

Fig 5.1: Graph representing Awareness for RPM technology among users

2. Advantages:

To understand the perception about the advantages of the device, an open-ended question was asked to the participants. Participants responded in form of statements and through QDA lite software, different codes were generated to understand user's perception. The advantages were categorized under reading time, ease of use/ user friendly, less physical visit to hospital facility, Doctor's response, Regular health status update, Device functionality and no side effect on body.

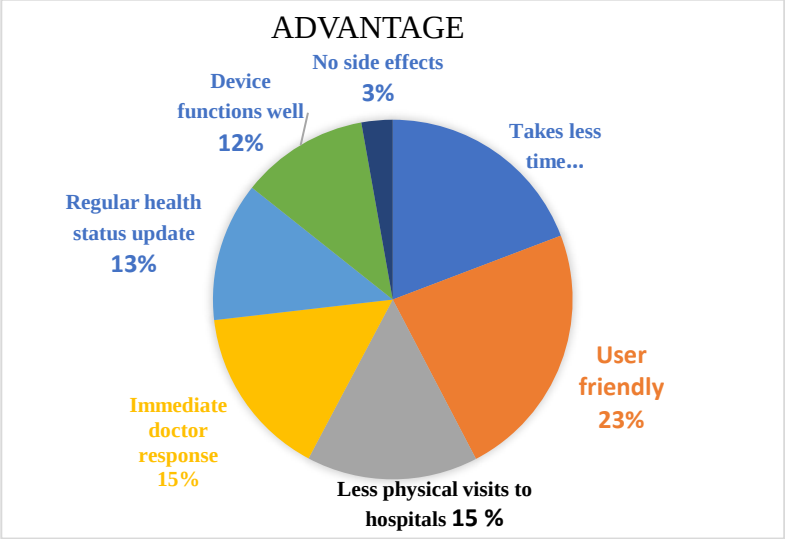

Fig 5.2: Respond towards advantages of device.

Most of the respondent showed positive response towards handiness of the device.

Respondent number 24; *Bahut chota machine hai, meri daughter-in- law bhi araam se use kar leti hai jab nurse chutti par hoti"*

Respondent number 6: *"This machine doesn't have long wires as other medical devices, its so small and operated via phone only".*

Respondent showed more confidence towards regular weekly updates they get from the homecare and immediate doctor response in case when vitals are abnormal.

Respondent number 9; *Personally, I feel more relaxed because the health status of my father is monitored by the doctor on a regular basis. Once they observed constant high blood glucose for 2-3 days, so doctor asked to change medications immediately.*

Respondent also acknowledged the fact that in Pandemic time due to the monitoring device there visit to health facilities/ physician have reduced.

Respondent number 14; *I had my TKR surgery last week, but I was scared as being in hospital during covid time is very risky. Because of this device my doctor was able to monitor my health records and it was extremely helpful.*

3. Disadvantages:

To understand participants attitude and perception regarding disadvantage of RHEMOS based on their experience, an open-ended question was asked. The disadvantages were also categorized under false readings, repeated test, technique sensitivity, charging issues and discomfort.

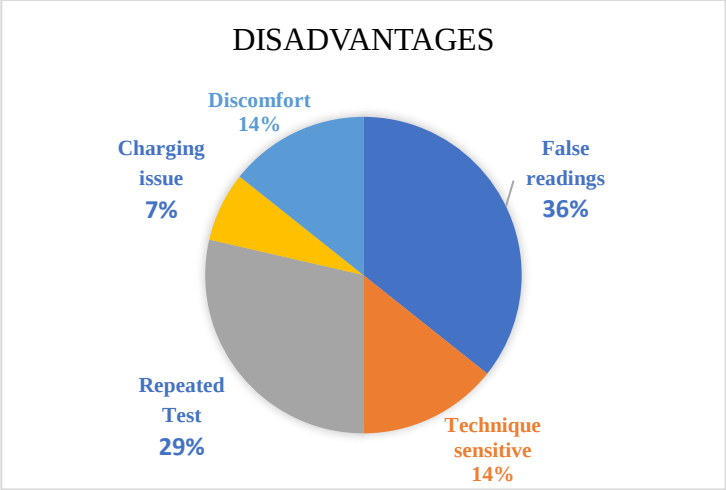

Fig 5.3: Response for disadvantages of device.

Respondents raised the issue of false readings especially blood oxygen level and blood pressure.

Respondent no. 3; *Blood pressure bahut jyada dikhata hai, nurse wapas doosri machine se karti to usme sahi dikhata.*

Most of the participants who informed about false readings gave further details of the multiple times nurse takes the readings when reading via RHEMOS shows remarkably high or low readings.

Respondent no 11; *I do not find this device reading accurate. My blood pressure readings are very low when taken by device. I doubt I will buy this device as when nurse will not be there who will take readings so many times.*

Almost 15% people show that this machine is not comfortable mainly for blood pressure monitoring as cuff creates more pressure on their arms and if placed incorrect readings comes abnormal.

Respondent no 21; *My mother is very week and her arms are thin. She complains of pain in her arm when blood pressure is measured and starts denying to give readings through machine*

4.Future Scope of RPM technology:

Most of the users i.e., almost 70% agreed that this kind of technology have a very bright future and people will buy it more. Respondent gave a mixed response when considered about awareness and cost of the device.

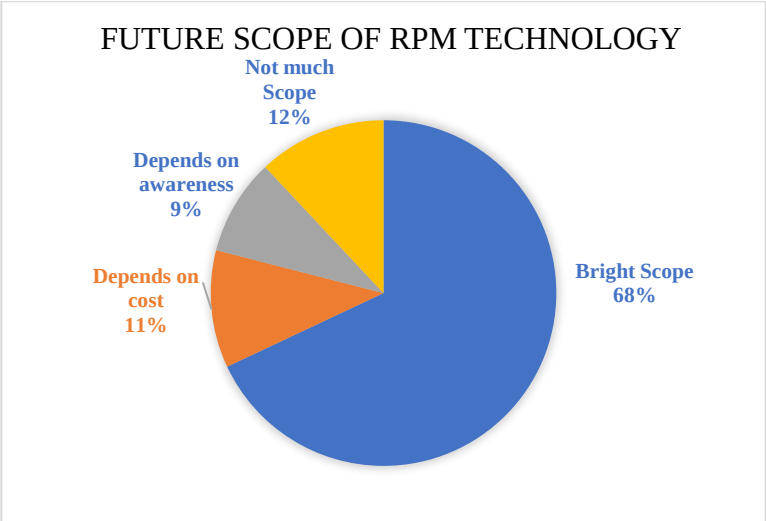

Fig 5.4: Response for future scope of RPM technology.

Respondent no.12; *Although this is extremely helpful to elder people but people will get this machine if its affordable. If the price will be high people will not buy it.*

Respondent no. 7; *This is the future of healthcare especially after covid time. The companies just need to create more awareness*

Chapter 6: Discussions

During covid times telemedicine saw an exponential growth in healthcare industry. Remote patient monitoring is a part of telemedicine technology. Nowadays many companies especially start-ups are innovating and developing digital technology driven medical devices to monitor the health vitals of patient remotely. People have started acknowledging importance of health parameters monitoring, teleconsultation so this kind of technology is gaining traction among public especially elder people and chronic disease patients who are at more risk towards health emergencies.

Most of the clients of Apollo Homecare are elder people or those chronically diseased people who need nursing supervision to improve their quality of life and reduce dependency on their family members or attendants. As telehealth is one of the integral parts of Apollo, a pilot project on remote patient monitoring device has been started on apollo homecare patients. The rationale behind this study was to find the usage and perspective of device among people.

90 % of users were not aware of Remote monitoring technology before using it. There were some apprehensions about its usage initially but most of them were comfortable with it later. Sensor based self-administrative test capture the readings quickly. User's gave positive response towards this feature as most of them agreed that the device takes less time as compared to normal conventional devices. The small size of device enhances the easiness for usage among users.

Due to covid there is limited public movement and people are reluctant to go to hospital facility due to fear getting infected i.e., such technology is accepted more. Responses were positive for real time data monitoring by physician. Users appreciated the fact that there is no need of any channel to get connected to their doctor for health monitoring. Due to their age factor with comorbidities, they acknowledge that they are at risk of seeking emergency response more frequently. And as this device continuously monitors their vitals under expert supervision, the risk of emergency has reduced.

Users also showed their concern regarding device accuracy and reliability. Most of the users were not confident about their vitals readings especially blood pressure and blood oxygen concentration via device.

In terms of future perspective for device acceptability most of them showed positive attitude towards its usage. As most of them were not aware about RPM technology previously, they suggested that if there are people are made aware about this technology and its benefits, the device will be accepted more. But they also showed concern for affordability factor as well.

Suggestions:

According to the perception of current users of Remote patient monitoring there is a scope of improvement to increase the acceptability rate.

1. Accuracy – Accurate measurement of health status is a key for disease diagnosis and management. Chronic diseases need continues monitoring, to keep track on disease severity. Thus, devices used for remote monitoring of patients must be accurate for providing correct readings of patient's vitals.
2. Reliable – The main purpose of using this technology is to prove real time data of patient vital to healthcare provider remotely. So, the device functionality must be reliable so that patient and healthcare provider can gave faith in using this technology.
3. Affordable – The current market for such RPM technology which includes sensor-based system, cloud interface and software database to support the functioning is very niche. But it should be provided to patients in an affordable range, else the acceptability rate will be less.
4. Education/Awareness – Promoting awareness campaign or providing education to patients regarding remote patient monitoring technology, its advantages will help people to accept the technology more.

Conclusion & Recommendation

Conclusion:

The pandemic exposed the requirement for the fast adoption of more and more innovative digital health technologies. And whereas telehealth, a key part of this, has receives abundant of main target. Remote patient monitoring is gaining traction since the start of pandemic. Key to remote patient monitoring is the software, hardware, and digital connection that capture and transmit the data through the Internet.

Remote patient monitoring devices help develop trust and transparency. The benefits of remote patient monitoring include lower readmission rates emergency wards, hospitals, and care facilities. As patient need not to visit to hospitals back and forth, the chances of cross infection have reduced, and it saves patients energy and time.

Remote patient monitoring technology is gaining an acceptability among older people suffering from chronic disease. Overall a positive attitude has been observed for using remote monitoring technology among RHEMOS device users. As it is IOT based technology elder age group people were not confident initially for device functioning and reliability later after using it most of the users found the device more comfortable to use. As this technology is new to the users of conventional healthcare setting, there is high chances of improvement to increase the usage among patients. Accuracy and real time data transferring are the key feature, for adaptability of the technology.

Other most important aspect for increasing usage of RPM technology is promoting awareness for the technology and its benefits. This technology if used in near future can help in improving the healthcare system.

Recommendation:

This study was conducted to study the attitude and perception of Remote patient monitoring technology among older adults who are using a assistive device RHEMOS for monitoring purpose. It has been observed that patients showed positive attitude regarding usage of device. Also, concerns were raised for some problems or issues which were considered as disadvantages of the device. Further studies are recommended to determine extended benefits or limitations of using remote patient monitoring technology among users. Also, studies can be done among those users where no nursing assistance or aid is present to know the compliance of using this technology.

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Annexure

Questionnaire for Data Collection

1. Name of patient
2. Age
3. Gender
4. Education
    - Primary
    - Secondary
    - Graduate and above
5. Are you currently employed?
    - Yes
    - No
6. Present Diagnosis:
7. Were you aware of any such device used for remote patient monitoring before homecare provide you for using?
    - Yes
    - No
8. As you are using this device, according to you what are the benefits of this device?
9. As you are using this device, according to you what are the demerits of this device?

    Or

    What are the issues/ problems you are facing while using this device?
10. According to you what is the future of such technology or device in future?