

Attitude Towards Telerehabilitation Of Clinical Physiotherapists In Pune Region

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ABSTRACT:

Background: Telerehabilitation, which is described by the American Telemedicine Association as the delivery of rehabilitation services via information and communication technologies to adults and children by a broad range of professionals is redefining the rehabilitation landscape and services. The purpose of this study is to assess and know the attitude of clinical physiotherapists towards telerehabilitation and to check whether to implicate telerehabilitation into daily practice or not.

Method: This study included 386 clinical physiotherapists who have minimum 2 years of experience in practicing physiotherapy and were residing in Pune region. The "Attitude Characteristics Of Practitioners" Questionnaire was used to assess the attitude towards telerehabilitation among clinical physiotherapists in Pune region.

Conclusion: Among the participants in this study, majority of them responded to have a positive attitude towards telerehabilitation. Special care of interest must be given to user experience and acceptance, newer development of technologies, interdisciplinary collaboration.

KEYWORDS: Attitude towards Telerehabilitation, Rethinking Telerehabilitation, Clinical Physiotherapists, Young Digital World, Healthcare

I. INTRODUCTION:

Telerehabilitation, which is described by the American Telemedicine Association as the delivery of rehabilitation services via information and communication technologies to adults and children by a broad range of professionals is redefining the rehabilitation landscape and services.[1] It has been seen that there is increased pressure on healthcare demands all over the world to provide good quality care and support by healthcare professionals. Therefore, the healthcare systems are looking for new ways to organize healthcare delivery to each individual who requires them.[2]

During COVID-19, when the whole world was in quarantine and protective measures were to be followed, many outpatient rehabilitation services

were minimized and treatment of many non-urgent cases were postponed or neglected. As a result, almost all physical therapy sessions were discontinued. The World Confederation of Physical Therapy (WCPT) promoted the use of telerehabilitation during the COVID-19 pandemic. Hence, the use of telerehabilitation as an alternative health service was promoted.[2] It was seen that there was a wide scope of telerehabilitation for reducing the risk of exposure and contamination to both patient and practitioner.[4]

Telerehabilitation helps patients access rehabilitation services during epidemics, disasters, pandemics, or when there are geographic, economic, or physical inadequacies in the provision of rehabilitation services.[4] There is a great impact of telerehabilitation which ranges from patients' easy access to a specialist, facilitation of continuity of care, and low cost to clinician-centered benefits.[5] Therefore, telerehabilitation can be of importance at crucial times of need to provide services.

Telerehabilitation systems can be classified as image-based rehabilitation, sensor-based rehabilitation, and virtual reality-based rehabilitation.[6] In some cases, virtual reality and augmented reality are used as similar concepts. Virtual reality can be expressed as an environment in which there are three-dimensional encounters in games, where the user is completely disconnected from the world when they enter this environment. Whereas, augmented reality, with real-world data and images that can be added to real-world images, is an environment that allows real and virtual objects to be perceived together in the same environment. Augmented reality both real and virtual, real-time interaction and three-dimensional imaging enable technological systems.[7]

The skills, capability, and adaptability of clinicians and therapists play an important role in the sustainability of any rehabilitation program.[8] There is increased demand for telerehabilitation in current and future utilization in providing services. The future hopes to continue to develop and use

new, innovative technologies that will transform current practice and make telerehabilitation an integral part of healthcare.[9] This new discipline has to be accepted by both patients as well as practitioners. To ensure the long-term use of such systems, it is imperative to understand the perspectives of healthcare providers and students in the implementation of telerehabilitation.[10] To safeguard the prolonged use of such services, it is important to know the mindset of healthcare providers in the implementation of telerehabilitation.

Implementing telerehabilitation in a way that is satisfactory to both providers and patients is a complex process. In the last decade, extending the traditional model of point-to-point telecare to include newer technologies, such as smartphones and internet-based telecommunications tools, has required the integration and interoperability of technologies within dynamic and rapidly evolving healthcare contexts.[11]

Rapid development in Telerehabilitation services stems from the desire to provide the best rehabilitation to beneficiaries irrespective of their location. Some disorders limit an individual's mobility critically, which prevents them from attending local health services.[12] This is majorly seen in use for patients with stroke [13], traumatic brain injury [14], developmental disorders, or progressive neurological disorders.[15]

Although studies carried out on the feasibility and acceptance of telerehabilitation showed promising findings in developed countries like the USA, UK, Canada, Netherlands, and Australia, studies that have been conducted in developing countries like India are quite few and thereby show many limiting factors and challenges while implementing telerehabilitation.[16]

Compared to the rest of the developed world, the implementation of telerehabilitation in India and other developing nations needs more research. India is culturally, socioeconomically, and geographically diverse, which poses a considerable challenge to creating uniform guidelines and policies suitable for every region.[17] Presently, there are no guidelines for the benefit of telerehabilitation by physiotherapists in India. Clinicians have to resort to adapting guidelines prepared by international organizations to fit their needs.[18]

During the COVID-19 pandemic era, the most important measure to reduce the virus spread was the isolation of the patient. At such times, providing physical rehabilitation services was restricted and the patients were confined to their

homes in individual rooms to avoid dissemination of the virus. [19] In such situations, a patient's total isolation requires non-face-to-face medical attendance, for which telerehabilitation can be put to use.[20] Therefore, it had been suggested that a session of exercise through a telerehabilitation system may be a feasible option for managing quarantined patients with COVID-19[21], enabling physiotherapists to provide interactive treatments utilizing different devices.[22]

Current evidence based on several studies demonstrates that telerehabilitation is increasingly associated with satisfactory pain and function outcomes for musculoskeletal-related issues along with effects seen in neurological, cardio-respiratory, and especially post-surgical conditions.[23]

The purpose of this study is to assess and know the attitude of clinical physiotherapists towards telerehabilitation and to check whether to implicate telerehabilitation into daily practice or not. Additionally, the results from this survey may help researchers design telerehabilitation guidelines that are specifically tailored to the unique needs of physiotherapists practicing in India majorly in Pune region.

II. NEED OF STUDY:

To date, less attention has been paid to evaluating and knowing about the attitude of clinical physiotherapists toward telerehabilitation and its anticipations towards its future utilization in Pune region.

By knowing the attitude towards telerehabilitation could be beneficial in changing the view of future rehabilitation services and reducing the pressure on healthcare systems. It can also help in improving the flexibility of exercise hours, helps to integrate skills into the daily life of the patients and thereby improve their quality of life. The need of this study is to assess and check the attitude towards telerehabilitation on clinical physiotherapists and to see if it will transform current practice and make telerehabilitation an integral and essential part of healthcare.

Future physiotherapists represent the next generation of the professional world and the uptake of telerehabilitation can be enhanced when potential graduate physiotherapists are knowledgeable and have positive attitudes towards its utilization. Therefore, there is a need to evaluate physiotherapists' attitudes and expectations for an empirical perspective. Current and future utilization of telerehabilitation is rapidly expanding. This relatively new discipline requires to be accepted by both consumers and providers. Therefore, this

study aimed to assess the attitude towards telerehabilitation among clinical physiotherapists.

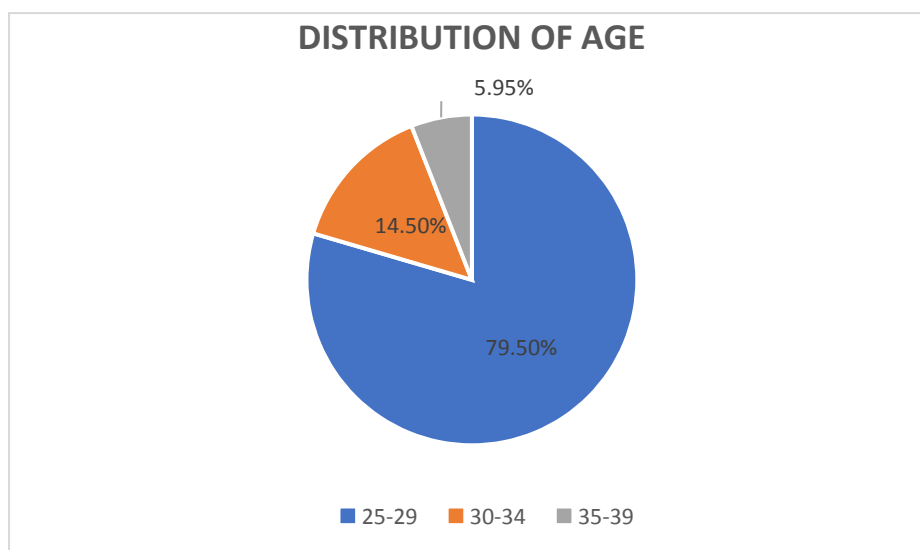
III. MATERIALS AND METHODOLOGY:

The study was carried out to assess the attitude towards telerehabilitation among clinical physiotherapists in Pune region. The physiotherapists included in this study had an experience of working in this field for 2 or more than that. The participants were sent the “Attitude Towards Physiotherapists” Questionnaire through online Google forms and were asked to fill it accordingly.

All the data was analysed using SPSS v23 and Microsoft Excel 2013 software. Data is presented in the form of frequency and percentage tables. Graphical presentation is used wherever required.

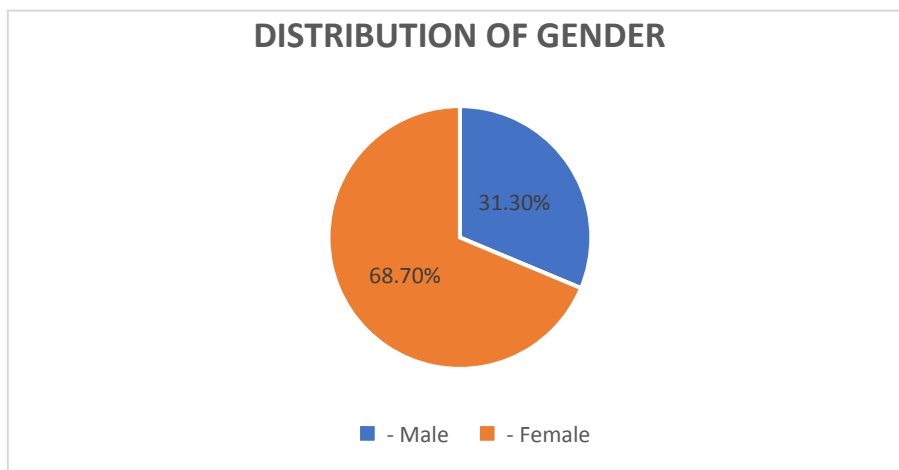
IV. TABLES AND FIGURES:

GRAPH I: Distribution Of Age



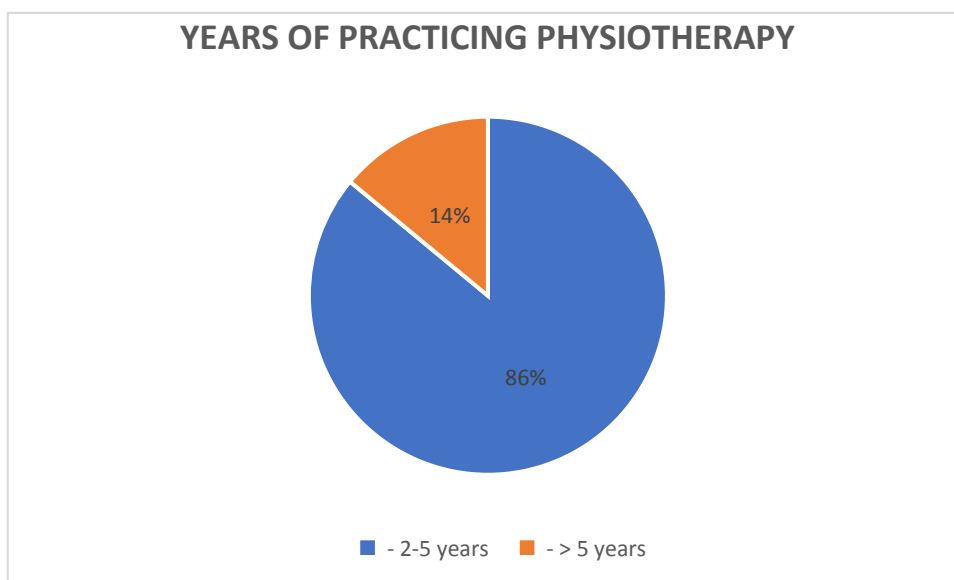
Interpretation: Graph I represent that out of 386 participants, 79.50% belonged to 25-29 years, 14.50% belonged to 30-34 years and 5.95% belonged to 35-40 years of age.

GRAPH II: Distribution of Gender



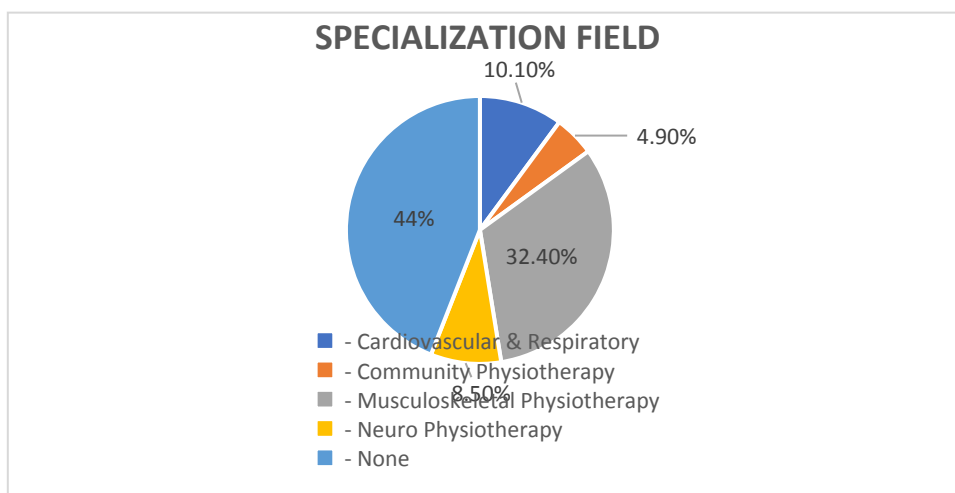
Interpretation: Graph II represents that out of 386 participants, 68.7% were Females and 31.3% were Males.

GRAPH III: Distribution of Years Of Practicing Physiotherapy



Interpretation: Graph III represents that out of 386 participants, 86% have an experience of 2 to 5 years meanwhile 14% have an experience of more than 5 years.

GRAPH IV: Distribution Of Specialization Field



Interpretation: Graph IV represents that out of 386 participants, 44% have not done any specialization, 32.40 % specialized in Musculoskeletal Physiotherapy, 10.10% in Cardiovascular Physiotherapy, 8.50% in Neuro Physiotherapy and 4.90% in Community Physiotherapy

RESULTS:

QUESTION 1: Am I comfortable with telerehabilitation applications?

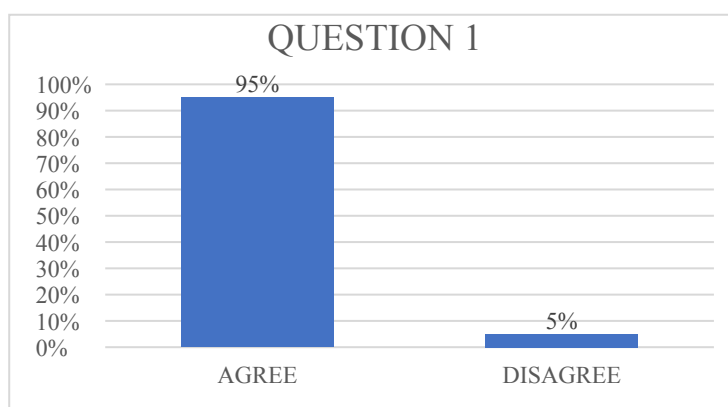
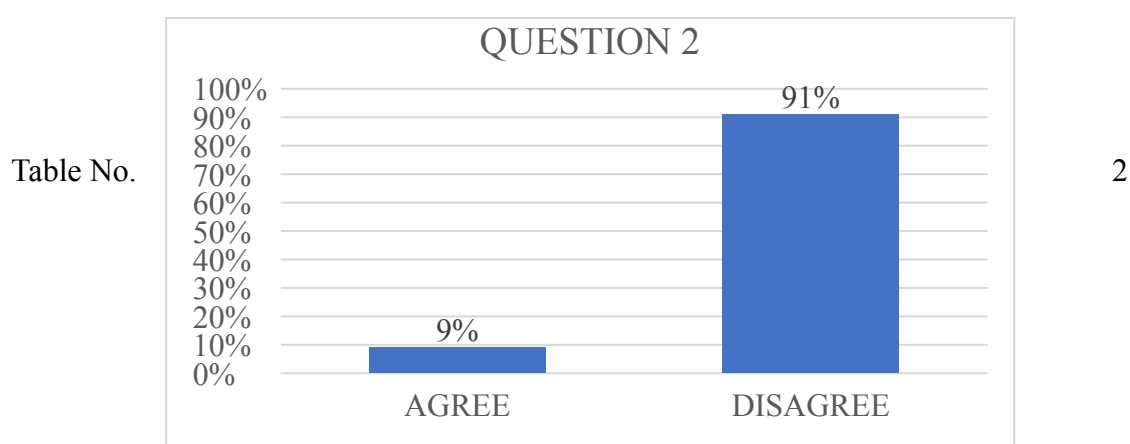


Table No.1

INTERPRETATION: Out of 386 participants, 95% agree that they are comfortable with telerehabilitation applications.

QUESTION 2: I have issues with number of capable internet devices like smartphone, tablets, and computer as am not used to them.



INTERPRETATION: Out of 386 participants, 91% disagree that they had issues using internet devices like smartphone, tablets and computers.

QUESTION 3: Telerehabilitation is convenient as I may not have to leave my environment

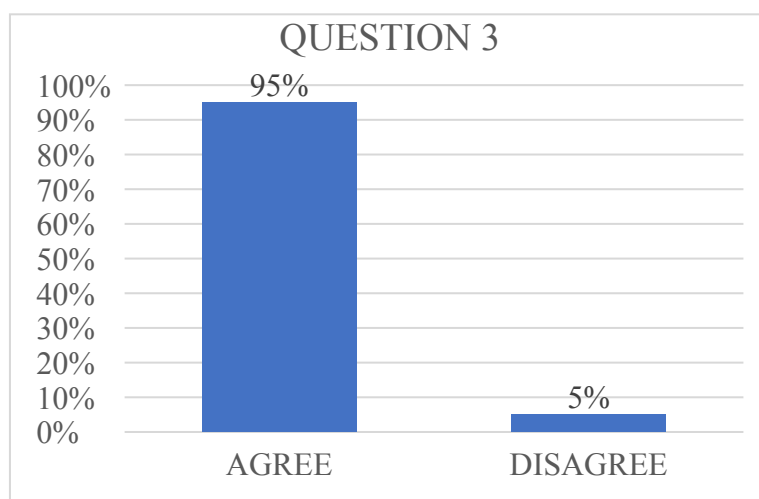


Table No.3

INTERPRETATION: Out of 386 participants, 95% agree that telerehabilitation is convenient as they don't have to leave their environment.

QUESTION 4: I find it easy to learn and use telerehabilitation system

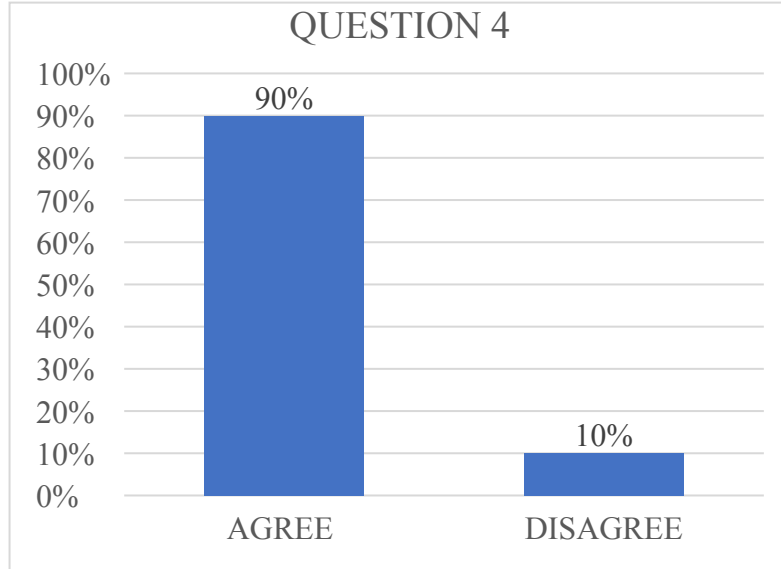


Table No.4

INTERPRETATION: Out of 386 participants, 90% agree that they find it easy to learn and use the telerehabilitation systems.

QUESTION 5: I believe I could be more productive quickly using Telerehabilitation

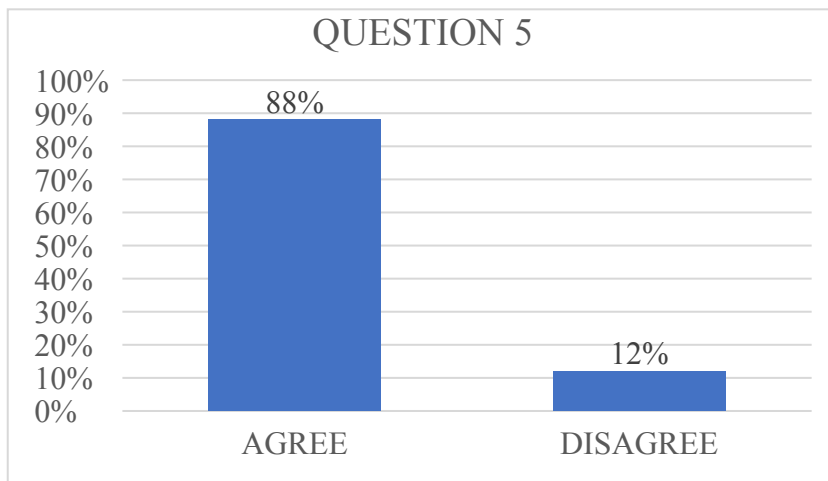


Table No.5

INTERPRETATION: Out of 386 participants, 88% agree that they could be more productive using telerehabilitation.

QUESTION 6: The way I interact with telerehabilitation system is satisfactory

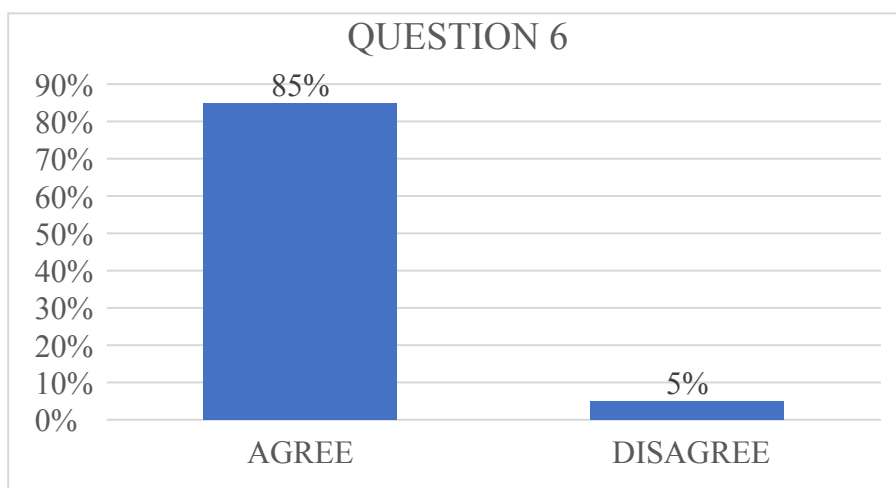


Table No. 6

INTERPRETATION: Out of 386 participants, 85% agree that the way they interact with telerehabilitation system is satisfactory

QUESTION 7: I like using telerehabilitation systems

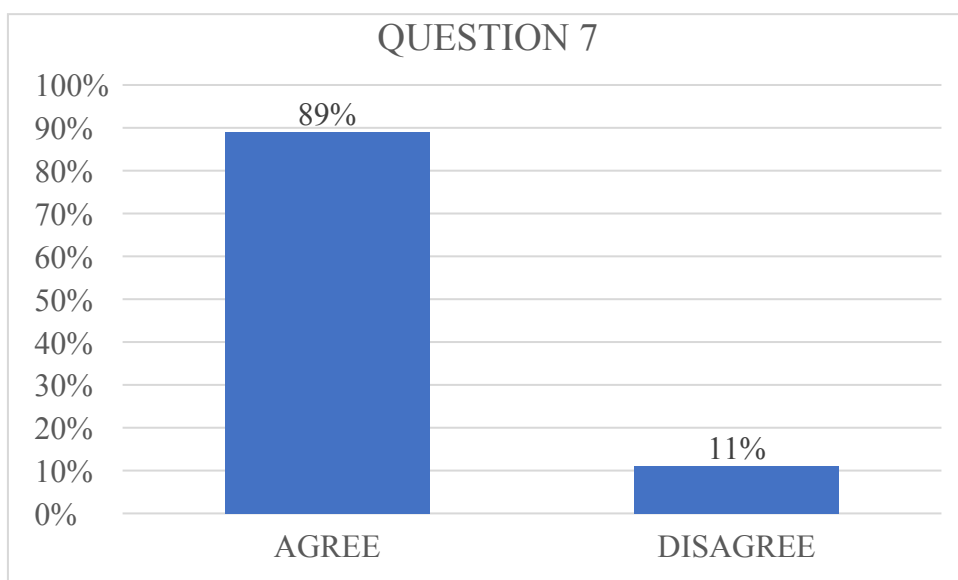


Table No.7

INTERPRETATION: Out of 386 participants, 89% agree that they liked using telerehabilitation systems.

QUESTION 8: Telerehabilitation systems are simple and easy to understand

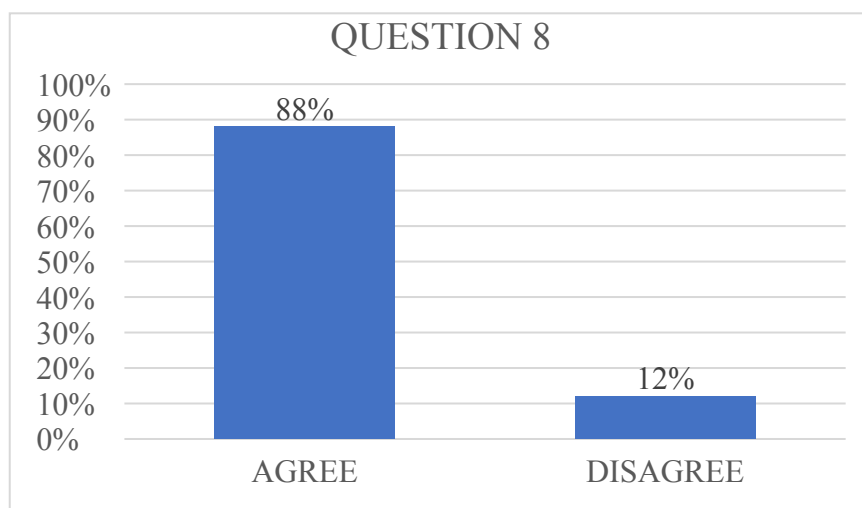


Table No.8

INTERPRETATION: Out of 386 participants, 88% agree that telerehabilitation systems are simple and easy to understand.

QUESTION 9: Telerehabilitation system is able to do everything I would want it to be able to do

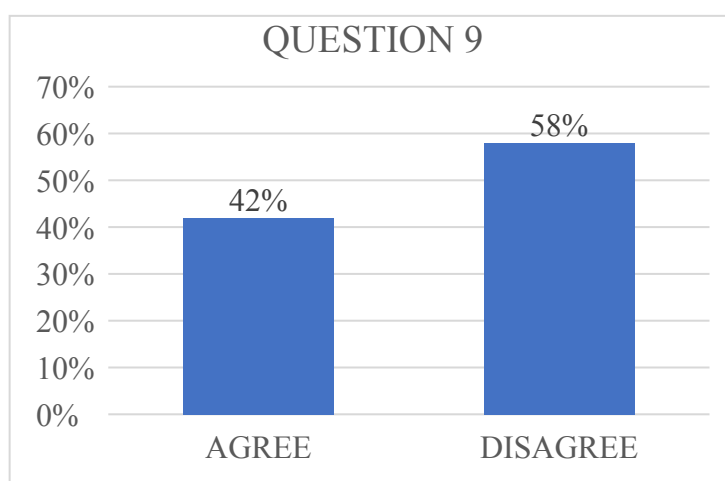


Table No.9

INTERPRETATION: Out of 386 participants, 58% disagree that telerehabilitation is able to do everything I would want it to be able to do

QUESTION 10: Telerehabilitation will help in easy access to health for rural patients

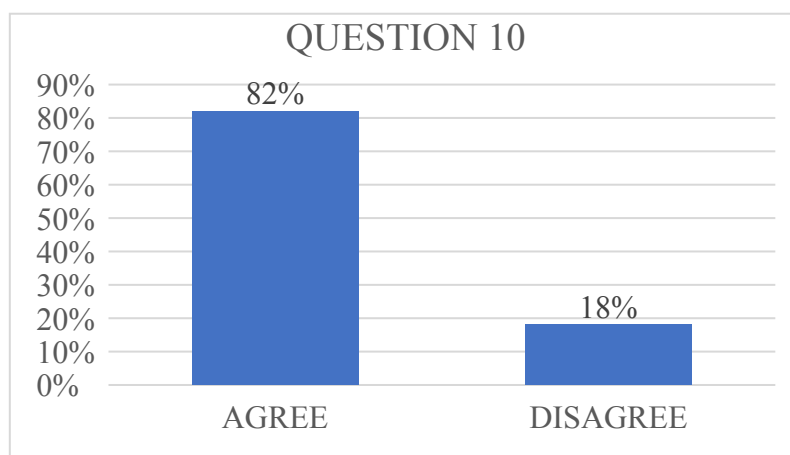


Table No.10

INTERPRETATION: Among the 386 participants, 82% agree that telerehabilitation will help in easy access to health in rural patients.

QUESTION 11: I presume patients would feel comfortable in being treated by Telerehabilitation

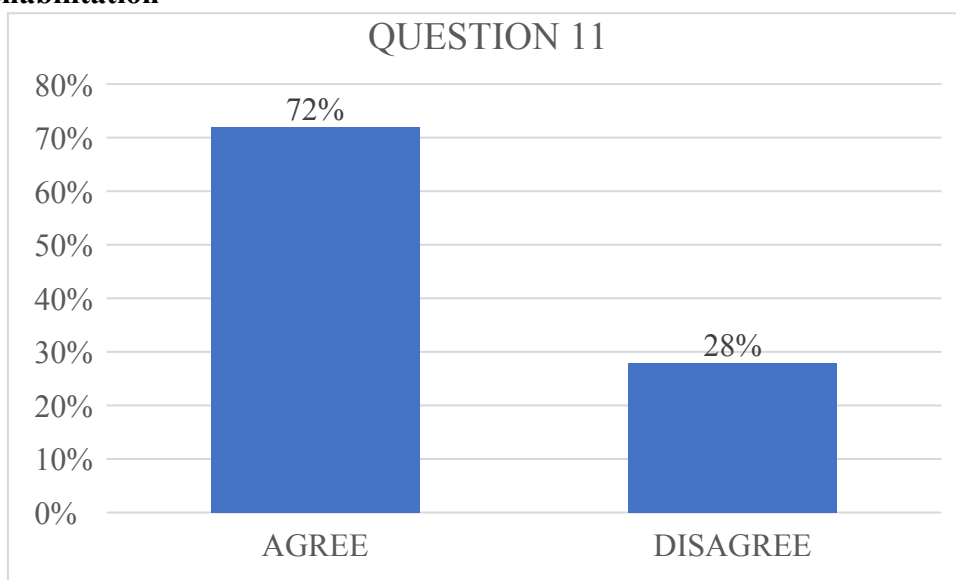


Table No.11

INTERPRETATION: Among the 386 participants, 72% agree that they presume that patients would feel comfortable in being treated by telerehabilitation.

QUESTION 12: Telerehabilitation can never replace face-to-face consultation

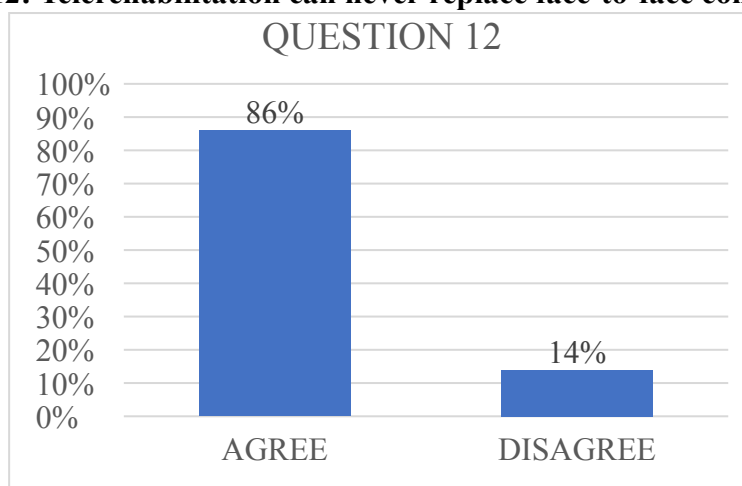


Table No.12

INTERPRETATION: Out of 386 participants, 86% physiotherapists agree that telerehabilitation can never replace face-to-face consultation.

QUESTION 13: I could not rely on a consultation via telerehabilitation

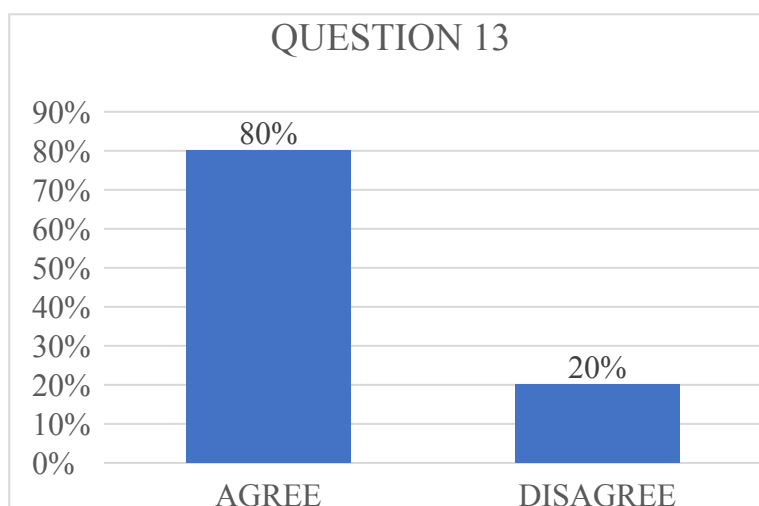


Table No.13

INTERPRETATION: Out of 386 participants, 80% agree that they could not rely on a consultation via telerehabilitation.

QUESTION 14: I will accept telerehabilitation only after seeing reports of patients being treated by it

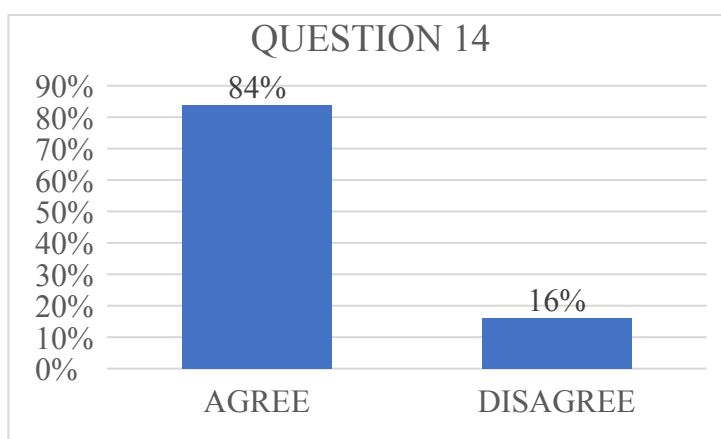


Table No.14

INTERPRETATION: Out of 386 participants, 84% agree that they will accept telerehabilitation only after seeing reports of patients being treated by it.

QUESTION 15: Due to lack of sufficient knowledge of telerehabilitation technology and application I am unable to practice it

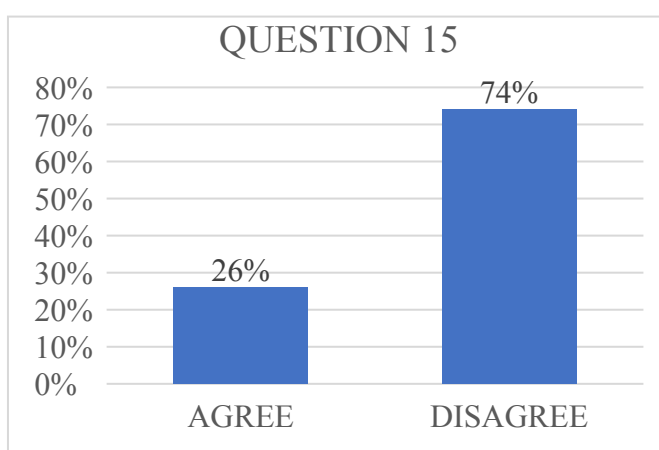


Table No.15

INTERPRETATION: Out of 386 participants, 74% disagree that due to lack of sufficient knowledge of telerehabilitation technology and application I am unable to practice it

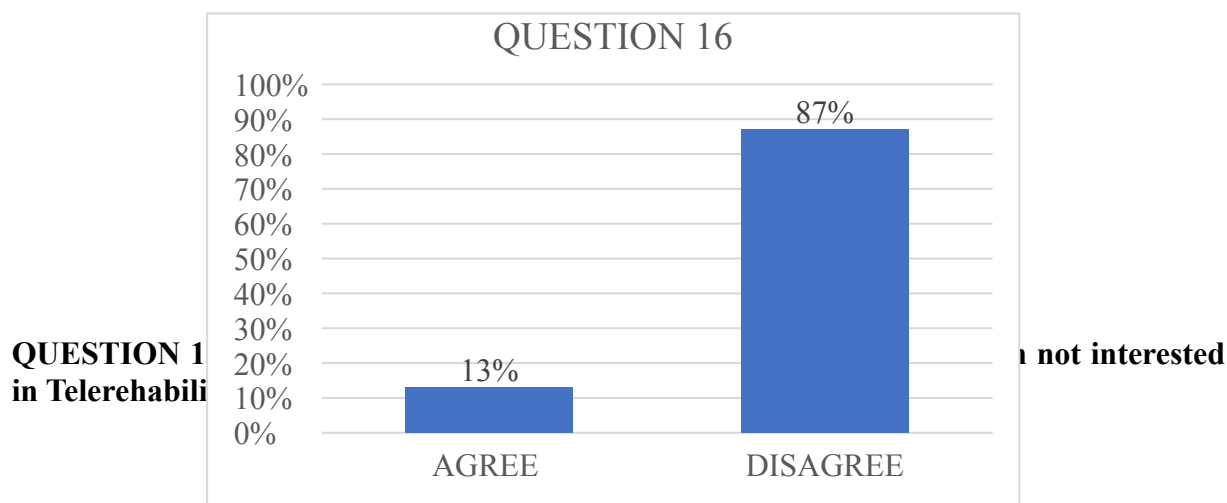


Table No. 16

INTERPRETATION: Out of 386 participants, 87% disagree that due to large number of patients in practice, they are not interested in Telerehabilitation.

QUESTION 17: Telerehabilitation is a waste of my valuable time

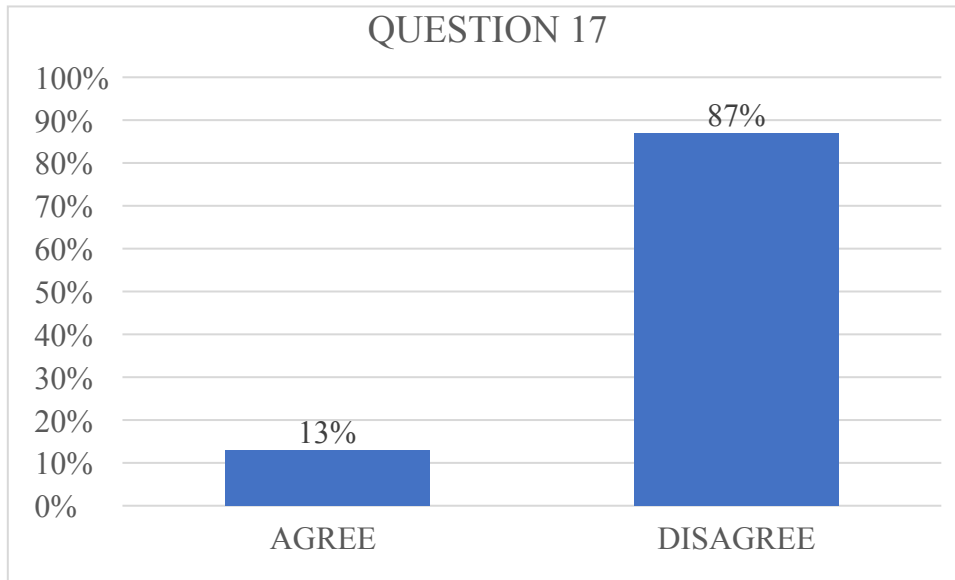


Table No. 17

INTERPRETATION: Among the 386 participants, 87% disagree that telerehabilitation is a waste of their time.

QUESTION 18: If a charge is made for telerehabilitation then I will use it

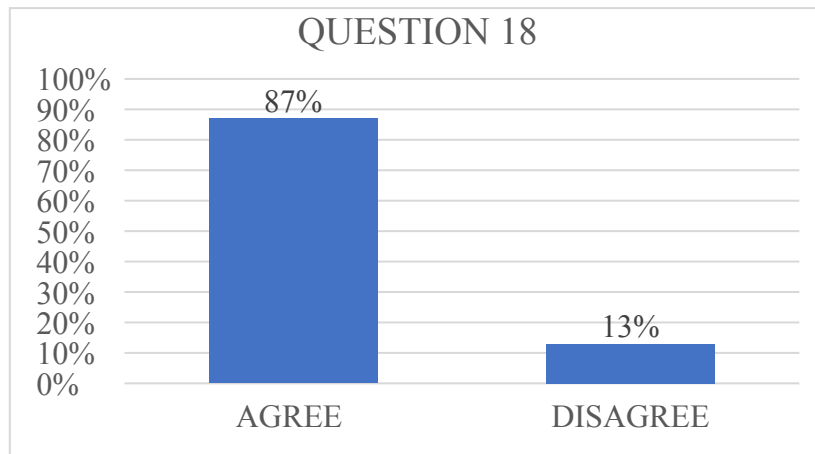


Table No. 18

INTERPRETATION: Out of 386 participants, 87% agree that if a charge is made for telerehabilitation, then they would use it.

QUESTION 19: I felt I was able to express myself effectively using telerehabilitation system

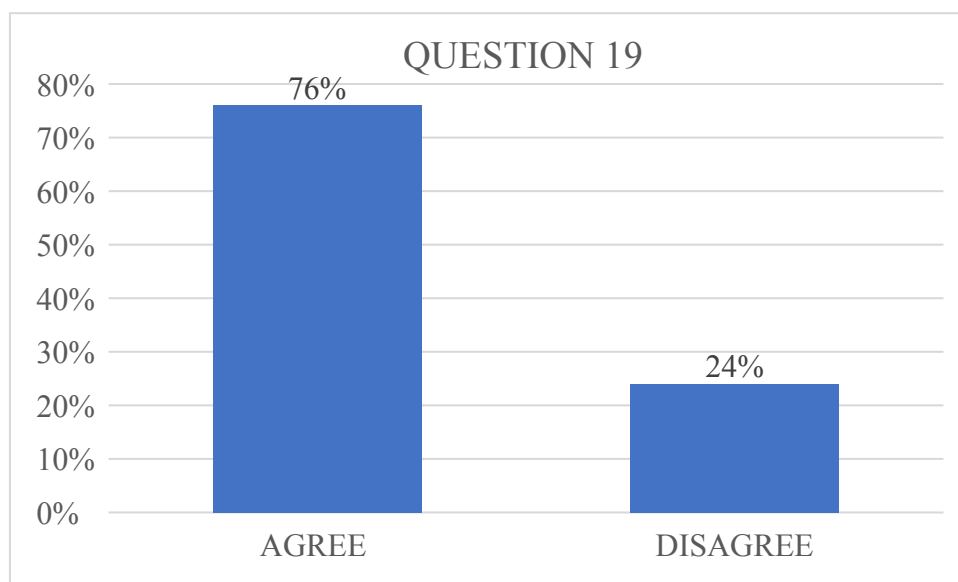


Table No. 19

INTERPRETATION: Out of 386 participants, 76% agree that they were able to express themselves effectively using telerehabilitation systems.

VI. RESULTS:

The research was conducted to check the attitude towards telerehabilitation among clinical physiotherapists living in Pune region. A total of 386 participants took part in this study from various age groups, genders, clinical experience and various specializations.

Majority of the participants were females, within the age group of 25 to 29 years, 86% amongst them having clinical experience of 2 to 5 years in practicing physiotherapy. 44% of the physiotherapists had completed their graduation, followed by 32.4% participants were specialized in musculoskeletal physiotherapy. The results were calculated on the basis of affirmative answers for positive question and negative answers for negative question. The result showed that the attitude towards telerehabilitation was positive by majority of the clinical physiotherapists residing in Pune region.

VII. DISCUSSION:

V.

Telerehabilitation through telecommunication services encompasses the remote delivery of different rehabilitation services including physical therapy. The main advantages of telerehabilitation over standard care include assistance to homebound patients without the need for the physical presence of a therapist and its cost savings.[3]

This study aimed to assess the attitude towards telerehabilitation among clinical physiotherapists working in the Pune region. The participants were sent the questionnaire online through WhatsApp, and mails and they filled using Google Forms.

The majority of the age group belonged to 25 to 29 years of age, thereby implying that young people, especially the millennials, are born in a digital world and are reported to be good at using technology because they are digitally active and well-versed in using technology in social interaction.

All the participants were further divided according to the years of experience of practicing in the clinical field with 86% of the

physiotherapists having an experience of 2 to 5 years, and 14% (N=54) having an experience of more than 5 years. The majority of the physiotherapists in this study have not done any specialization in any field after graduation followed by physiotherapists specialized in Musculoskeletal Physiotherapy.

Table no.1 gives the result for the question, am I comfortable with telerehabilitation services, which the participants revealed that they found it comfortable to use telerehabilitation applications as it was convenient and easy to use. Various factors can be taken into consideration such as patient care provided through continuous provision of services, reduced transportation costs, and time.[3]

From Table No. 2, it can be concluded that 91% of participants didn't have any issues using internet devices like smartphones, tablets, and computers as they were used to them. So as seen in the demographic data taken, the majority of the age group belongs to 25 to 29 years of age. The young generation finds it feasible to make use of advanced technology and is positioned to apply advances in communications to patient management and rehabilitation. [3]

Table no.3 shows that 95% of physiotherapists find convenience in using telerehabilitation as they don't have to leave their environment. It has been seen that there are positive effects of rehabilitating a patient in their own social and vocational environment, also reducing the impacts of traveling regularly to the hospital or clinic setup. [2]

Table no. 4 implies that telerehabilitation is easy to learn and use, as it is comfortable and productive to use. Hence, there is a need to create a platform to provide both therapists and the patients with infrastructure needed to fulfill the various stages of telerehabilitation, from assessment to treatment and also follow-up.[2]

Table no. 5 concluded that physiotherapists believe that they are more productive quickly using telerehabilitation. They can counsel and educate patients remotely with reasonable consistency in a more comfortable environment at their homes, complete an evaluation and assess patients, plan a tailored and customized therapeutic exercise intervention, and assess patients' progress by delivering them constant advice and feedback under supervision.[24]

Table no. 6 shows that 85% of physiotherapists agree that the way they interact with telerehabilitation systems is satisfactory. Several researchers have observed that the use of

telerehabilitation has led to high levels of patient satisfaction reinforcing the hypothesis that the delivery of rehabilitative services from a distance is a feasible alternative to routine care. There was satisfaction seen concerning goal achievement, patient-therapist relationship, overall session satisfaction, and quality and performance of the technological platform is high. [25]

Table no. 7 implied that 89% of physiotherapists liked using telerehabilitation systems. It was seen that a lesser need for in-person admittance to clinics consequently leads to time and cost savings, reduced work absence hours, reduced car traffic, and maybe even reduced air pollution while traveling towards the patient's place.[26]

88% of physiotherapists agree that telerehabilitation is simple and easy to understand. There were no complications seen as such to the use of telerehabilitation services. It gave better results for better patient compliance and lower probability of treatment intervals. Studies have shown that Asynchronous methods using different mobile apps (e.g., Skype, WhatsApp, Google Meet, Facebook Messenger, Viber, and FaceTime), as well as emails and text messages were the most common mode of Telerehabilitation delivery and monitoring.[27]

From table no. 9, it can be seen that 58% disagreed that telerehabilitation can do everything they would want to do. Several studies showed that there were several interface issues like not having captions, screen reader, magnification, and not being able to communicate properly using sign language. Another factor was that numerous elderly patients who required continuous rehabilitation had inadequate information about how to use smart devices, while these individuals needed help with technological devices. In a few studies, the experiences of the therapists and the patients reveal that opportunities and challenges that must be faced, such as technological barriers, ethical and legal regulations, health insurance coverage, and cultural difficulties that preclude the understanding that telehealth and digital practice can be an effective means of rehabilitation.[28]

Table no. 10 implies that telerehabilitation will help in improving the provision of health services in rural areas, those who cannot afford to go and visit physiotherapy clinics that are far away from their home place, who do not have physiotherapy clinic set-ups nearby where they are residing. It is important to understand the benefits of the same, especially living in remote areas or

unable to reach local health providers because of physical impairments.[29]

Table no. 11 implies that 72% of therapists assume that patients would find it comfortable to use telerehabilitation applications. It could be due to various factors like being in a positive environment, which is often considered motivational for the patient. Telerehabilitation allows the training of functional tasks in the patient's usual environment rather than in clinical settings, which favors their transfer to daily life. Several studies show the effectiveness of telerehabilitation, with most of the patients finding it positive as they had not experienced any difficulties in explaining their physical problems and following their therapists' advice through video calls.[25]

From Table No. 12, it can be seen that 86% of physiotherapists think telerehabilitation can never replace face-to-face consultation. Many physiotherapists still think that lack of physical contact affects the assessment required to diagnose the cause of movement impairments and limitations. While it may not replace in-person sessions in all cases, it can certainly supplement them.[30]

Table no.13 shows that 80% of participants agreed that they couldn't rely on consultation via telerehabilitation. Studies have shown that patients require a whole diverted attention for the same and take the time to look at the whole person and not just your area of care. Another drawback seen in using telerehabilitation is hackers and other criminals who may be able to gain access to a patient's medical information if they use telerehabilitation services through an unknown or unencrypted channel. Problems like poor connectivity can make it difficult to provide appropriate treatment to someone who needs it in an emergency.[31] Other important barriers were data privacy concerns, lack of user-friendly software, perceived lack of clinical utility, perceived increase in workload, negative attitudes of staff involved, and the cost of equipment. A few studies also mentioned a lack of awareness about telerehabilitation in society, internet connectivity issues, a lack of personal contact/touch, poor patient compliance, low technology literacy, and increased stress caused by explaining and delivering therapy through telerehabilitation as barriers.[32]

84% of physiotherapists suggest that they would accept telerehabilitation only after seeing the patient's reports (table no.14) since there might be difficulty in the assessment of the patient, which

may lead to delayed improvement of the patient. During telerehabilitation sessions, therapists must rely on patient self-reports, which would necessitate asking more questions to obtain a complete health history. If there is any missing history or any other important symptom that the patient fails to mention, the treatment may be jeopardized.[32]

74% of physiotherapists (N=286) disagree that due to a lack of sufficient knowledge in telerehabilitation technology and applications, they are unable to practice it. The young generation may already be used to using digital applications, hence there is no such barrier found for implementing telerehabilitation. These digital platforms are receiving increasing exploration, especially from youth in developing countries who desire to be in tandem with information technology strides. [3] From Table no.16, it can be seen that the majority of physiotherapists disagree with the fact that they are not interested in telerehabilitation even though they have a large number of patients in practice. It allows the therapist to provide therapy remotely, saving time for both- the therapist and the patients while still delivering effective care and monitoring progress. [29]

From Table No. 17, it can be seen that 87% disagreed that telerehabilitation is a waste of their time. Several studies have shown how telerehabilitation can be useful and time-consuming for the patients as well as the therapists. Telerehabilitation can be a valuable use of a physiotherapist's time as it enables them to reach and assist patients who may not have access to traditional in-person therapy or who prefer the convenience of remote sessions. By the use of technology, physiotherapists can provide effective rehabilitation services, monitor progress, and offer guidance to patients from the comfort of their own homes. Telerehabilitation also allows for greater flexibility in scheduling appointments and can help optimize the therapist's time by reducing travel and administrative tasks associated with in-person visits.[33]

Even though a charge is made for using telerehabilitation services, the majority of the physiotherapists (N=336), agree that they would use telerehabilitation applications and services as seen in Table no.18. Charging for telerehabilitation services can be a viable option for physiotherapists. It allows them to offer their expertise remotely while still generating revenue for their practice. However, it's essential to ensure that the pricing is fair and competitive, considering factors such as the quality of service provided, market demand,

and the costs associated with implementing and maintaining the technology required for telerehabilitation. Offering flexible payment options or packages can also make these services more accessible to patients. Ultimately, the decision to charge for telerehabilitation should be based on a thorough assessment of the practice's business model and the needs of its patient population.[34]

The effectiveness of telerehabilitation is seen in several studies. From table no.19, physiotherapists agree that they were able to express themselves better effectively using telerehabilitation when used previously. Several studies have shown that the majority of physiotherapists agree that telerehabilitation offers a practical solution to provide physiotherapy services. With time and practice, they might become motivated and interested in using telerehabilitation services.[35]

VIII. CONCLUSION:

This study concluded that among 386 participants, majority of clinical physiotherapists have a positive attitude towards telerehabilitation. Cultivating a positive attitude towards telerehabilitation offers numerous clinical benefits and contributes to overall rehabilitation success. It would also help to contribute to the advancement and widespread adoption of remote healthcare delivery models for people in need.

IX. CLINICAL IMPLICATIONS:

- Telerehabilitation can be utilized to increase the reach and efficacy of physical therapy services to patients who cannot travel to physiotherapy centers especially those who live in remote areas.
- Provision of comprehensive education and training to use telerehabilitation can be given to the upcoming future physiotherapists who will be new in this market and can make use of such services.
- Patients can connect through telerehabilitation to physiotherapists who can communicate in their same, convenient language from a long distance.

X. FURTHER SCOPE OF STUDY:

1. Effectiveness: To investigate the effectiveness of telerehabilitation compared to traditional methods across different populations and countries. It could involve conducting clinical trials and longitudinal studies to assess various outcomes like patient satisfaction, functional improvement and the effectiveness of cost.
2. Development of Technology: Future researches and newer technologies can develop tools tailored

for telerehabilitation such as virtual reality systems, and using artificial intelligence algorithms. These advancements could enhance the quality and efficiency of remote rehabilitation services.

3. User Experience and Acceptance: Examining the user experience and acceptance of telerehabilitation among patient, caregivers, and healthcare providers. Understanding factors that influence adoption and adherence can optimize service delivery and promote engagement.

4. Interdisciplinary Collaboration: Fostering interdisciplinary collaboration between healthcare professionals, technologists, researchers, and policymakers to advance the field of telerehabilitation. This can lead to approaches and solutions that address the needs of patients.

5. Ethical and Legal Considerations: Address the ethical and legal considerations related to privacy, confidentiality, informed consent, licensure, and reimbursement in the practise of telerehabilitation. Development of such policies and framework can help in ensuring ethical conduct and also compliance with regulatory requirements.

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