Archives of Occupational Health | Volume 6 | Issue 3 | July 2022 | 1256-64.

Original

Awareness, Attitude, Belief and Utilization of Telerehabilitation Services among the Physical therapists of Gujarat State

Vivek H. Ramanandi

Associate Professor, SPB Physiotherapy College, Veer Narmad South Gujarat University, Surat, India• *Corresponding Author: Vivek H. Ramanandi, Email: vivekramanandi@gmail.com

ABSTRACT

Background: COVID-19 pandemic has significantly affected provision of healthcare services in all the fields including physical therapy. Telerehabilitation refers specifically to clinical rehabilitation services with the focus of evaluation, diagnosis, and treatment. Being a technologically evolving country, physical therapists of India are unfamiliar with the context and concept of telerehabilitation at large. This study intends to explore awareness, attitudes, and beliefs of Gujarati physical therapists regarding telerehabilitation and utilization of telerehabilitation services among them. **Methods**: An Internet based cross-sectional study was conducted on 389 physical therapists across Gujarat. Data were analysed using descriptive statistics of mean, percentages and standard deviation. **Results:** Participants (n=145 males, n=244 females) were aged 31.66 ± 8.2. 332 (85.4%) of the participants were aware of telerehabilitation. This is while only 116 (29.82%) were using it for service provision. 288 participants (74.03%) reported that the Internet connectivity was a major barrier regarding their acceptance in telerehabilitation on a regular basis. However, about 246 (63.24%) reported that it was difficult for patients to understand and adjust with telerehabilitation services.129 (33.16%) of the physical therapists were not interested in telerehabilitation when compared to conventional physical therapy. **Conclusion**: A large proportion of Gujarati physical therapists are aware of telerehabilitation services. Positive attitude belief about telerehabilitation services were reported. Due to various reasons, utilization of telerehabilitation based services by physical therapists was fairly low.

Keywords: Awareness; Attitude; Physical Therapy; Telerehabilitation

Introduction

Telehealth is a broad umbrella of modalities including non-clinical and clinical services. On the other hand, telerehabilitation refers specifically to clinical rehabilitation services focusing on evaluation, diagnosis, and treatment.[1] It can be provided in a variety of ways including real-time audio-video visits, virtual check-ins, e-visits, telephone assessment and management, remote assessment of pre-recorded videos or images.[2] Remote rehabilitation has been used by various members of multidisciplinary team for its virtues of wider reach and accessibility. It has emerged as an important means of health service provision during and after COVID-19. Currently, various software packages, phone applications and games, augmented and virtual reality, video- or tele-conferencing, artificial intelligence, and sensor-based services are used to offer telerehabilitation.[3]They can be useful tools for providing a high quality and

Citation: Vivek H. Ramanandi. **Awareness, Attitude, Belief and Utilization of Telerehabilitation Services among the Physical therapists of Gujarat State.** Archives of Occupational Health. 2022; 6(3): 1256-64.
Article History: Received: 03 January 2022; Revised: 19 June 2022; Accepted: 20 July 2022

[DOI: 10.18502/aoh.v6i3.10700]

personalized physical therapy and rehabilitation services in society and in an effective way. Telerehabilitation reduces crowding of patients and accompanying people in clinics/hospitals at this critical time of COVID pandemic. Implementing telerehabilitation proactively can generate greater long-term benefits and help with everyday challenges in providing health care services.[4]

Because of the increased availability and sophistication of technology, use of telerehabilitation in physiotherapy is being recommended by researchers.[5,6] Mobile devices, such as phones, tablets and smartphones; remote monitoring devices such as stethoscope, wireless scale, thermometers, pulse oximeters; high-quality cameras; high-quality and high-speed Internet connectivity are important components of telerehabilitation.[7] Moderate quality of intervention and positive impact on health outcomes and satisfaction in musculoskeletal conditions were addressed in a systematic review of video conferencing based physical therapy.[8] Various studies have attempted to compare in-person physical therapy care with telerehabilitation. There is supporting evidence regarding telerehabilitation for specific conditions such as cancer, heart conditions, musculoskeletal disorders, and depression.[8,9]

Although studies carried out on feasibility and acceptance of telerehabilitation showed promising findings in developed countries like USA, UK, Canada, the Netherlands, and Australia, studies conducted in developing countries like India are less and show many limiting factors and challenges while implementing telerehabilitation.[10,11] These challenges include underdeveloped infrastructure, inadequate training for professionals, ethical issues, and financial implications.[12] Physical therapists in India, and specifically Gujarat, are not regularly using telerehabilitation and are facing difficulties adjusting to the *'New Normal'* of the physical therapy service provision. However, it appears that no study has been conducted on awareness, attitude, belief and utilization of telerehabilitation among Gujarati physical therapists. Therefore, this study focuses on exploring awareness, attitudes, and beliefs of Gujarati physical therapists regarding telerehabilitation and utilization of telerehabilitation services among them.

Methods

Study population: 389 physical therapists from Gujarat state

Study duration: April to June 2021

Study setting: Online Internet-based survey using Google form Gujarat state.

Sampling method: Convenient sampling by sending invitations through e-mail, social media and personal messages

Inclusion criteria: Physical therapists from Gujarat having minimum undergraduate physical therapy qualification and their willingness to participate by giving electronic consent.

Exclusion criteria: Unwillingness to participate or not being in Gujarat state.

Study tool: Data regarding awareness, attitude, belief and utilization of telerehabilitation services among physiotherapists was collected using a self-designed and pre-validated online survey questionnaire. The questionnaire included 2 sections: Section A included socio demographic information such as age, sex, highest qualification, type of physical therapy practices, and years of experience as physical therapist: Section B consisted of 5 major parts: Part 1 contained 5 items on awareness of telerehabilitation, part 2 , 4 items on belief about telerehabilitation, part 3 , 6 items on utilization of telerehabilitation, Part 4 ,4 items on attitude towards telerehabilitation, and part 5 contained items on perceived challenges implementing telerehabilitation.

Procedure: After receiving the invitation for participation, the purpose and procedure of the study was explained to the participants in written form at the on the first page of the survey. Informed digital consent for participation was obtained before participation in the study. In next steps, they were provided with questions and were allowed to pick one or more than

[DOI: 10.18502/aoh.v6i3.10700]

one option with respect to the question's requirement. Responses were received for 30 days by sending weekly reminder messages through the previously mentioned channels. After 30 days, data were sorted and stored in Microsoft excel format for further analysis.

Data analysis: The data received from the survey were analysed using Microsoft Excel program for descriptive analysis. Frequency distribution for all the sections was used to assess the aspects under study. Tables and graphs were used for displaying descriptive characteristics of the survey outcomes.

Results

Socio-demographic characteristics of participants

Physical therapists (female=244, male=145) aged 31.66 ± 8.2 (age range 23-58) were involved in the survey. Majority (n=356, 91.52%) of the respondents were less than 50 years old. A third (n=258, 66.32%) of the participants had undergraduate level physical therapy qualification. A total of 283 (72.75%) participants were working in clinical practice field (Table 1).

Awareness of telerehabilitation services

332 (85.35%) participants reported awareness of the existence of telerehabilitation (Table 2). Participants reported that they obtained information about telerehabilitation from studying literature (30.59%), various media (34.96%), other physical therapists (28.02%), and through other means (6.43%) (Table 2). The majority of respondents reported telerehabilitation as the most suitable method for orthopaedic and musculoskeletal rehabilitation (82.78%) followed by neurological (49.87%), physical fitness (51.67%), cardio-pulmonary (11.05%), geriatric care (15.94%) and others (9.51%) (Figure 1).

Table 1. Distribution of Participants' Socio-demographic Characteristics

Variable	Group	Frequency (n)	Frequency (%)
Age(years)			
	20-29	213	54.76
	30-39	89	22.88
	40-49	54	13.88
	50-59	30	7.71
	60-69	3	0.77
Sex			
	Female	244	62.72
	Male	145	37.28
Educational background			
	Undergraduate (BPT)	258	66.32
	Postgraduate (MPT)	123	31.62
	Ph.D. and others	8	2.06
Professional Field			
	Clinical	202	51.93
	Academic	106	27.25
	Mixed	81	20.82

Table 2. Distribution of Participants' Responses to Questions on Awareness

Question	Variable	Frequency (n)	Frequency (%)
Are you aware of the use of telerehabilitation for physical therapy practice?	Yes	332	85.35
	No	55	14.14
	No response	56	14.40
*If the answer to the previous question is "yes", what is your source of information?	Literature	119	30.59
	Media	136	34.96
	Other physical therapists	109	28.02
	Other means	25	6.43
Are you familiar with telerehabilitation services?	Yes	301	77.38
	No	86	22.11
	Not completely	2	0.51
*What are the most suitable areas for the use of telerehabilitation while providing physical therapy?	Orthopedic and musculoskeletal physical therapy	322	82.78
	Neurological physical therapy for adults and children	194	49.87
	Physical fitness in pregnancy and other medical conditions	201	51.67
	Cardio-pulmonary physical therapy	43	11.05
	Geriatric care physical therapy	62	15.94
	Other problems	37	9.51
*Participants were allowed to provide more than one option			

[DOI: 10.18502/aoh.v6i3.10700]

Attitude towards telerehabilitation services

248 (63.75%) participants responded that they would like to practice or would encourage their colleagues to start utilizing telerehabilitation. 254 (65.30%) participants considered the place of telerehabilitation to be very important in the healthcare system (Table 3).

209 (53.73%) physical therapists reported that telerehabilitation services are always effective, and 124 (31.88%) considered them to be sometimes efficient (Figure 2).

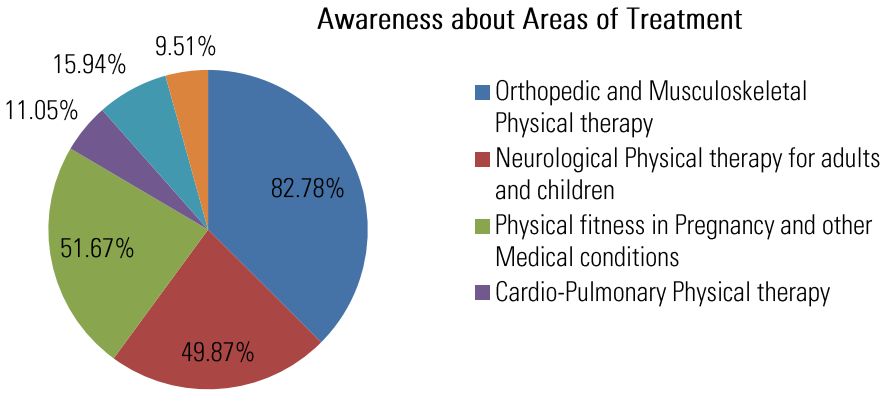

Figure 1. Distribution of Participants' Awareness Regarding Areas for using Telerehabilitation in Physical therapy

Table 3. Distribution of Participants' Responses to Questions on Attitude

Question	Variable	Frequency (n)	Frequency (%)
Would you like to utilize telerehabilitation or encourage any of your colleagues to use telerehabilitation?	Yes	248	63.75
	No	68	17.48
	Do not know	56	14.40
	No response	17	4.37
How efficient and effective do you perceive telerehabilitation services?	Always	209	53.73
	Sometimes	124	31.88
	Do not know	36	9.25
	Seldom	11	2.83
	Not at all	5	1.29
	No response	4	1.03
What is your view of the place of telerehabilitation in the healthcare system?	Very important	254	65.30
	Important	89	22.88
	Do not know	23	5.91
	Not important	16	4.11
	No response	7	1.80

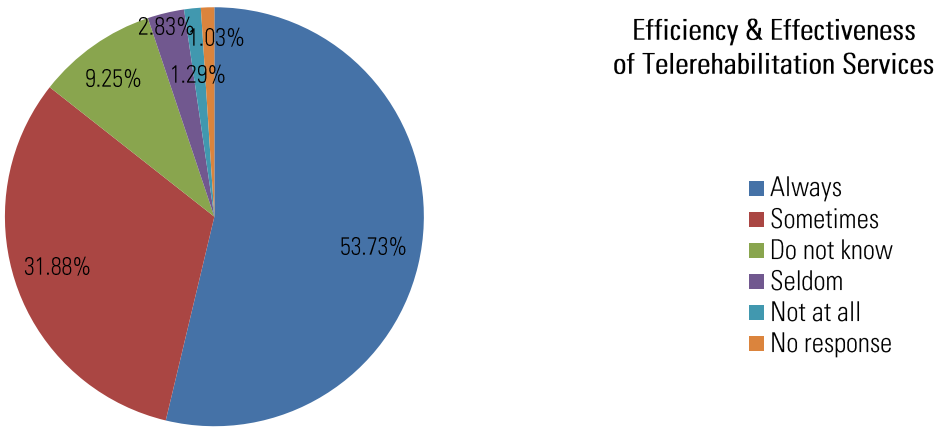

Figure 2. Distribution of Perception of Efficiency and Effectiveness of Telerehabilitation Services

[DOI: 10.18502/aoh.v6i3.10700]

Belief about telerehabilitation services

The majority of participants, (n=197, 50.64%), strongly agreed that telerehabilitation can be used to increase reach and efficiency of physical therapy services. However, 109 (28.02%) physical therapists agreed that the conventional delivery system is better and favoured in-person physical therapy as compared to telerehabilitation (Table 4). 194 (49.87%) of them strongly agreed that their current awareness of telerehabilitation was sufficient to use it for providing physical therapy services (Table 4). More than half of the participants (n=223, 57.33%) felt that telerehabilitation was necessary to upgrade physical therapy practice patterns (Figure 3). 183 (47.04%) participants strongly believed that telerehabilitation will be the preferred mode of providing physical therapy services in future (table 4). Moreover, approximately half (n=181, 46.53%) of the participants believed that patients will seek to be consulted and treated using telerehabilitation for physical therapy, and 239 (61.44%) thought that physical therapy students should be given formal training regarding telerehabilitation during their college education (Table 4).

Table 4. Distribution of Participants' Responses to Questions on Belief

Question	Variable	Frequency (n)	Frequency (%)
I believe that telerehabilitation can be useful to increase reach and efficiency of physical therapy services.	Strongly agree	197	50.64
	Agree	58	14.91
	Indifferent	34	8.74
	Disagree	64	16.45
	Strongly disagree	24	6.17
	No response	12	3.08
I believe that the conventional system is better and favor in-person physical therapy as compared to telerehabilitation.	Strongly agree	27	6.94
	Agree	109	28.02
	Indifferent	16	4.11
	Disagree	98	25.19
	Strongly disagree	134	34.45
	No response	5	1.29
I believe that my current awareness of telerehabilitation is sufficient to use it for providing physical therapy services.	Strongly agree	194	49.87
	Agree	89	22.88
	Indifferent	7	1.80
	Disagree	28	7.20
	Strongly disagree	10	2.57
	No response	61	15.68
I believe that telerehabilitation is a necessary means of upgrading physical therapy practice patterns.	Strongly agree	223	57.33
	Agree	36	9.25
	Indifferent	43	11.05
	Disagree	48	12.34
	Strongly disagree	17	4.37
	No response	22	5.66
I believe that telerehabilitation services will be the preferred mode of delivering physical therapy services in future.	Strongly agree	183	47.04
	Agree	97	24.94
	Indifferent	44	11.31
	Disagree	22	5.66
	Strongly disagree	16	4.11
	No response	27	6.94
I think that patients will seek to be consulted and treated using telerehabilitation for physical therapy.	Strongly agree	181	46.53
	Agree	94	24.16
	Indifferent	41	10.54
	Disagree	29	7.46
	Strongly disagree	14	3.60
	No response	30	7.71
I think that physical therapy students should be given formal training for telerehabilitation during their college education.	Strongly agree	239	61.44
	Agree	88	22.62
	Indifferent	19	4.88
	Disagree	18	4.63
	Strongly disagree	7	1.80
	No response	18	4.63

[DOI: 10.18502/aoh.v6i3.10700]

Utilization of telerehabilitation services

From 332 therapists familiar with telerehabilitation services, more than half (n=246, 63.24%) were not utilizing telerehabilitation as a regular service provision method. Telerehabilitation-based physical therapy was reported to be used by only 109 (28.02%) individuals. The majority (n=68, 62.39%) of them reported that they used a mixture of telerehabilitation and in-person methods to deliver the physical therapy services (Table 5).

Most of the participants stated that application of telerehabilitation for providing physical therapy services is affected by underdeveloped infrastructure (n=365, 93.83%), inadequate training for professionals (n=352, 90.49%), ethical issues (n=287, 73.78%), and financial implications (n=328, 84.32%). Majority of the respondents 246 (63.24%) reported that it was difficult for patients to understand and adjust with telerehabilitation services (Figure 4).

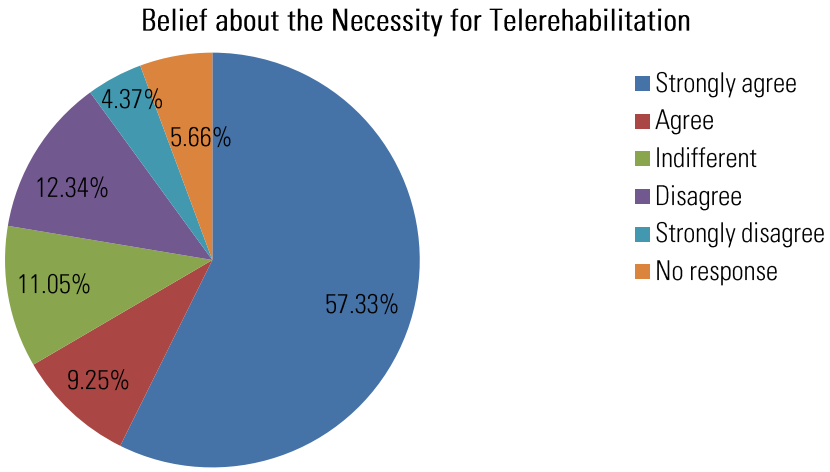

Figure 3. Distribution of Participants' Belief about the Necessity of Telerehabilitation

Table 5. Distribution of Participants' Responses to Questions on Utilization of Telerehabilitation Services

Question	Variable	Frequency (n)	Frequency (%)
Have you been utilizing telerehabilitation as a regular service provision mode?	Yes	109	28.02
	No	246	63.24
	No response	34	8.74
How have been you utilizing telerehabilitation during your physical therapy?	Only telerehabilitation	41	10.54
	Blended mode	68	62.39
	Not using telerehabilitation	246	63.24
	No response	34	8.74
What do you think are the barriers in application of telerehabilitation for providing physical therapy services?			
Underdeveloped infrastructure	Yes	365	93.83
	No	19	4.88
	No response	5	1.29
Inadequate training for professionals	Yes	352	90.49
	No	31	7.97
	No response	6	1.54
Ethical issues	Yes	287	73.78
	No	48	12.34
	No response	54	13.88
Financial implications	Yes	328	84.32
	No	35	9.00
	No response	26	6.68
I think it is difficult for the patients to understand and adjust with telerehabilitation services.	Yes	246	63.24
	No	74	19.02
	Cannot say	48	12.34
	No response	21	5.40

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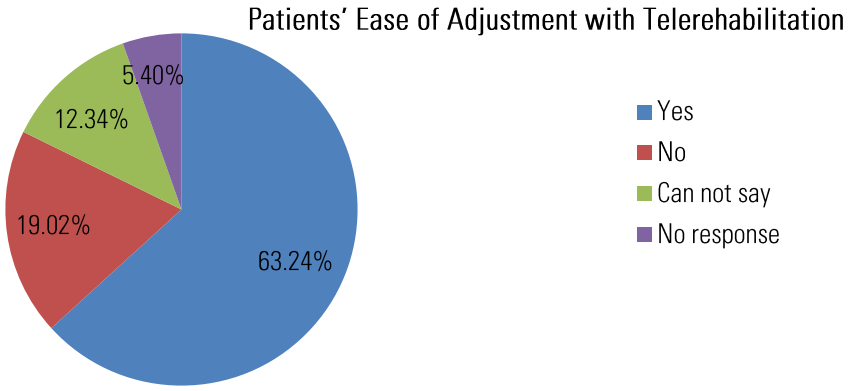

Figure 4. Distribution of Patients' Ease of Adjustment with Telerehabilitation

Discussion

In the literature, only a few publications addressed the discussed subject. This effectively precludes an honest and credible discussion, comparison, and potential remarks regarding the existing reports. This study included a convenient group of the participants with a majority of young female physical therapists from Gujarat state of Western India.

Awareness of telerehabilitation for physical therapy practice among physical therapists of Gujarat state was found to be high. This may be because of easy and better access to Internet and smart phone facilities across India. Additionally, because of the lack of time and the growing need for therapy, physical therapists are continuously upgrading their academic and clinical skills via seminars, webinars, research work, workshops, etc. through offline and online resources. This may have led to the increased involvement of physical therapists in telerehabilitation because of more knowledge of various platforms and global trends in service provisions. Some phone services of physical therapy have revealed equally effective outcomes for patients with musculoskeletal conditions. They are more accessible and affordable while having less requirements in terms of access to a computer or Internet and skills for operating high tech gadgets.[13] Higher awareness may also be due to needs- based education and implementation during the time of pandemic. A study conducted in Gujarat by Vyas and Sheth (2021) reported that about 94% of physical therapists knew about telerehabilitation, suggesting similar findings.[14]

In this study, findings indicated that physical therapists who were familiar with telerehabilitation, obtained their information mainly from various media including social media platforms and Internet-based advertisements. Moreover, there has been an increase in use and reach of social media and their usefulness in improving healthcare delivery across the globe. This is consistent with the findings of Dantas et al. (2020), who conducted a survey in Brazil. They concluded that increased knowledge and implementation of telerehabilitation was directly correlated with the use of social media.[15]

Though participants in this study suggested that telerehabilitation can be utilized to increase reach and efficiency of physical therapy services, a large proportion of the total population agreed that in-person physical therapy was better. These findings suggest the conservative approach of physical therapists towards acceptance of telerehabilitation in Gujarat. The reasons or barriers described by physical therapists were less time provided to patients, lack of patients' technical knowledge, difficulties in communication with patients, interruption with face to face consultations, lack of good Internet connection and video quality, lack of physical testing, poor motivation of patients, poor patient adherence and follow-up, malpractice,

[DOI: 10.18502/aoh.v6i3.10700]

privacy and confidentiality issues, cultural and environmental stigma, etc. The findings are in line with various previous studies conducted by researchers in India and outside India.[13, 14, 16]

These difficulties and challenges along with technical issues made it difficult for participants to utilize telerehabilitation as regular service provision. It was reported that most of those practitioners who practiced telerehabilitation used both in-person and telerehabilitation mode of therapy. Many mentioned technical issues such as bandwidth, the time taken for setting up the telerehabilitation platform, difficulty understanding technical details by patients especially from older age group, lighting, poor quality of audio-video, call drop, etc. Such issues, especially in poor countries like India, are hindering the process of adaptation and utilization. These findings are consistent with the study by Narekuli A et al. (2019) in India and Egmond V et al. (2018).[17,18]

This study had a few limitations. As the questionnaire used in this study was self-designed and face-validated only, the findings of the study could have been affected by the design and questions used in it. Furthermore, the questions could not be answered by those with no or little Internet facilities and the senior physiotherapists working for years with little familiarity with telerehabilitation or online contents. it was difficult to describe their experiences, attitudes and beliefs regarding telerehabilitation. Future studies may include offline questionnaires after further establishing of content validity and reliability of the questionnaire and may cover a wider population for better understanding of the aspects.

Conclusion

Based on the findings of this study, researchers concluded that many physical therapists in Gujarat State are aware of physiotherapy services. Participants have positive beliefs and attitudes towards telerehabilitation services. Physical therapists also have fairly high hopes regarding future utilization of telerehabilitation services. However, they are currently challenged by various factors affecting their regular usage of telerehabilitation to provide services.

Conflict of interest

The author declares no conflict of interest.

Acknowledgement

Author would like to thank all the participants for their contribution towards information and realization of this research.

Authors contribution

Author has conceptualized and conducted study and has written, edited and finalized the manuscript.

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