The Research of Medical Science Review
ISSN: 3007-1208 & 3007-1216 Volume 3, Issue 8, 2025

PERSPECTIVES OF PHYSICAL THERAPISTS TOWARDS THE USE OF SMARTPHONE APPLICATIONS FOR PATIENT'S REHABILITATION

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DOI: https://doi.org/10.5281/zenodo.16830811

Keywords
Smartphone Applications, Patient Rehabilitation, Self-Management Apps in Physical Therapy

Article History
Received: 03 May, 2025
Accepted: 06 August, 2025
Published: 13 August, 2025

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Abstract

Background: *Smartphone applications have emerged as powerful tools in the realm of physical therapy, by empowering both patients and healthcare providers. The study will delve into the potential advantages of smartphone applications in physical therapy including home-exercise programs, progress tracking, monitoring, education, and self-management.*

Methodology: *A cross-sectional survey was conducted among 232 physical therapists. The informed consent was taken from each participant for the data collection process. The data was analyzed through Statistical Package for the Social Science (SPSS) version 22.0 and presented the results in the form of Descriptive statistics.*

Results: *The results are revealing that only half were aware of these applications and had them installed on their devices. Most respondents supported the development of more apps for education in clinical practices, while a smaller percentage expressed a negative stance. Most participants found smartphone apps useful for guiding patients about home-exercise plans, and 50.9% believed that physical therapists should explain to patients when they wish to use these apps during consultations.*

Conclusion: *The study concludes that physical therapy-related smartphone applications must be more widely used and understood by physical therapists to enhance their clinical decision-making processes. Factors such as time constraints and the patient-therapist trust relationship influence the adoption or rejection of these applications during consultations. It has revealed a significant gap in the knowledge and utilization of these applications among physical therapists*

INTRODUCTION

The rapid advancement of information and communication technologies has transformed various sectors globally, with healthcare being one of the most significantly impacted. Mobile health (mHealth) solutions, particularly smartphone applications, have emerged as powerful tools that support patient engagement, remote care delivery, and data-driven health decisions [**Error! Reference source not found.**]. As the global smartphone penetration rate exceeds 80%, mobile platforms are increasingly being used to promote health education, track treatment progress, and deliver interventions across medical disciplines—including physical therapy [**Error! Reference source not found.**].

In physical therapy, the integration of smartphone applications has revolutionized rehabilitation practices by offering real-time communication, remote patient monitoring, and tailored home exercise programs [**Error! Reference source not found.**]. These apps not only aid therapists in streamlining clinical decision-making but also empower patients through improved self-management, adherence to exercise protocols, and access to educational materials [**Error! Reference source not found.**]. Moreover, studies have shown that mHealth interventions can positively affect clinical outcomes such as pain, function, and quality of life in patients with musculoskeletal and neurological conditions [**Error! Reference source not found.Error! Reference source not found.**].

Despite these advantages, literature highlights gaps in awareness, adoption, and consistent use of such technologies among physical therapists. For instance, Rowe et al. (2020) [**Error! Reference source not found.**] observed that while many clinicians use apps for clinical reference, few recommend them for patient use. Similarly, Bolarinde et al. (2021) [**Error! Reference source not found.**] found that many physical therapists in clinical settings still underutilize smartphone applications due to time constraints, lack of training, or concerns over professionalism during patient consultations.

Furthermore, factors such as age, gender, digital literacy, clinical experience, and workplace setting significantly influence technology adoption among therapists. Previous studies have suggested that younger, digitally native therapists are more likely to integrate smartphone apps into their practice compared to older colleagues [**Error! Reference source not found.**]. Others point to a lack of standardized guidelines and privacy concerns as barriers to app implementation in clinical environments [**Error! Reference source not found.**].

Given this context, it is essential to explore not only the level of awareness and usage of physical therapy-related smartphone applications but also the determinants that influence their adoption or rejection in clinical settings.

METHODOLOGY

A cross-sectional study was conducted over one year period, from January 2023 to December 2023, focusing on Physical Therapists assigned in Karachi, Pakistan, specifically within OPDs and Rehabilitation Centers. The research aimed to gather insights from a sample of 332 participants, determined using RaoSoft software at a 95% Confidence Interval and a 5% margin error. The sampling technique employed was non-probability convenient sampling, involving Clinical Physical Therapists. The sample for this study will include clinical physical therapists with at least one year of professional experience, as well as house officers who have a minimum of six months of clinical practice, and individuals who are willing to participate. Physical therapists working in academic institutions, interns, and students of physical therapy will be excluded from the study.

Data collection utilized a validated questionnaire adapted from a previous study by Samuel Olufemi Bolarinde et al. in 2021, with informed consent acquired from each participant. Subsequently, the collected data underwent analysis via Statistical Package for the Social Science (SPSS) version 22.0, presenting findings through descriptive statistics. Ethical considerations were paramount, with approval from the institutional research board ensuring participant confidentiality.

The sample size was calculated through RaoSoft software, an open source calculator by using a reference study conducted by Samuel Olufemi Bolarinde, et al. (2021) [**Error! Reference source not found.**] entitled as "The Use of Smartphones and Physiotherapy-Related Applications for Health Information among Clinical Physiotherapists".

Therefore, at 95% Confidence Interval with margin error 5%, the sample size of 332 was obtained. It was non-probability convenient sampling / simple random sampling technique. Questionnaire was distributed to participants and Informed consent was taken from each participant. The data which was collected by questionnaire analyzed through Statistical Package for the Social Science (SPSS) version 22.0. The results were presented in the form of Descriptive statistics. Permission was taken from the institutional research board and the higher authorities of the United College of Physical Therapy. Confidentiality of data was secured & the identity of participants were not be revealed.

RESULTS

The study included 232 Physical Therapists; the majority of about 69.4% were between the ages of 20 and 29 (Table 1, Fig 1). Females made up 65.1% of all participants (Table 2, Fig 2).. The majority about 70.7% had Doctor of Physical Therapy (DPT) degrees (Table 3, Fig 3). and 90.1% had 0-9 years of clinical experience (Table 4, Fig 4).. Clinical physical therapists made up the largest group, accounting for 80.6% (Table 5, Fig 5).

Smartphone ownership was high that is 97.8%, with 77.2% of respondents aware of physical therapy-related apps. Medical app ownership stood at 59.5%. Physical therapy-specific app awareness and ownership varied: 63.8% were aware, 59.5% were owners, and 37.5% owned more than three applications (Table 6, Fig 6).

Usage patterns varied, with 70.3% not routinely utilizing physical therapy-related apps. Lack of awareness is found in 32.8% Physical therapists; time constraints were the issue highlighted by 47.8% Physical therapists. About 49.1% discussed these apps with colleagues, while 46.6% shared them with them. 78.0% of respondents supported continued app development for clinical education support. Concerns were raised regarding smartphone use potentially impacting 61.6% of patient confidence, despite the fact that 72.0% found it useful for leading home-exercise routines (Table 7, Fig 7).

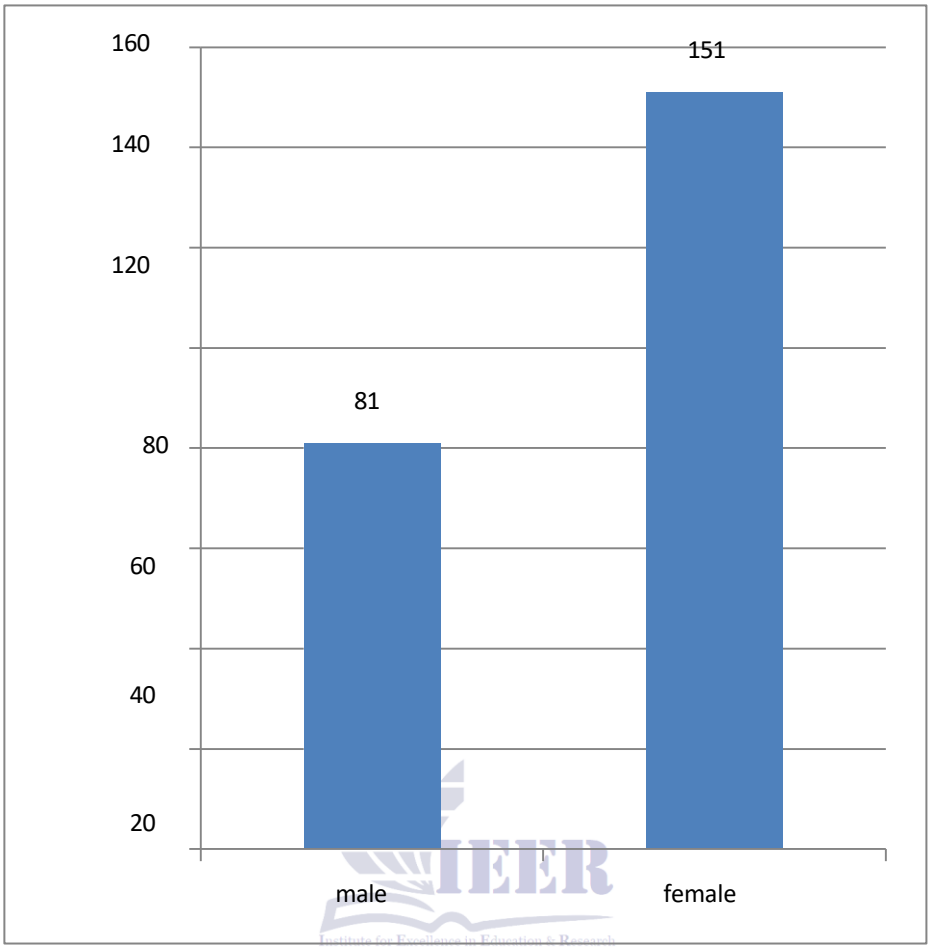

Figure 01: Illustrate frequency of male and female

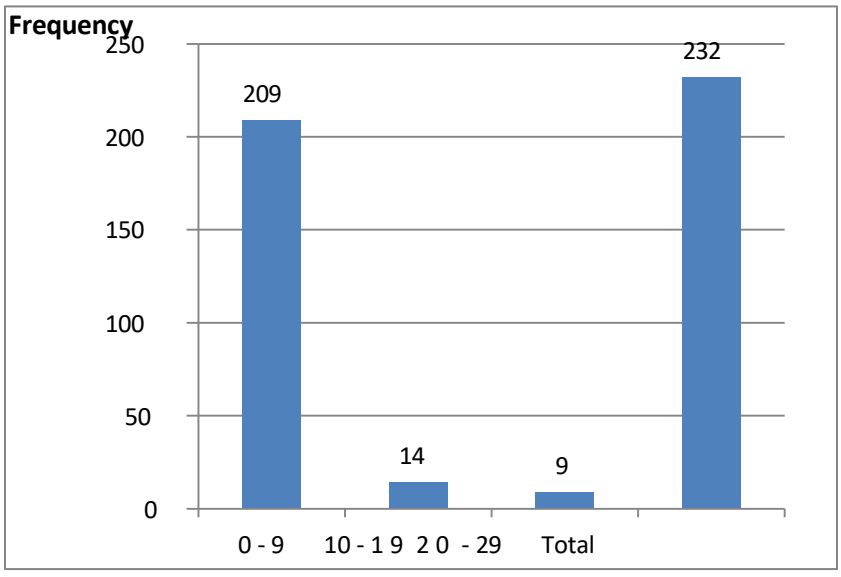

Figure 02: Illustrate Clinical Experience of Participants

Table 6: Knowledge of Physical Therapy-Related Smartphone Applications

VARIABLES (n = 232)	YES		NO	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Own an android smartphones	227	97.8	5	2.2
Known of medical-related smartphone applications	179	77.2	53	22.8
Have medical-related apps on your phone	138	59.5	94	40.5
Know of physiotherapy-related apps	148	63.8	84	36.2
Have physiotherapy-related apps on your phone	108	46.6	124	53.4
Have <3 physiotherapy related apps on my phone	87	37.5	145	62.5
Have >3 physiotherapy related apps on my phone	68	29.3	164	70.7

Table 7: Uses of Physical Therapy-Related Smartphone Applications

VARIABLES (n = 232)	YES		NO	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Do you use the physiotherapy-related apps daily?	69	29.7	163	70.3
Do you use the physiotherapy-related apps twice weekly?	88	37.9	144	62.1
Do you use the physiotherapy-related apps weekly?	90	38.8	142	61.2
Do you use physiotherapy-related apps as the need arises?	128	55.2	104	44.8
Do you not use physiotherapy-related apps because you are not aware of its availability?	76	32.8	156	67.2
Do you not use physiotherapy-related apps because you never explore it?	102	44.0	130	56.0
Do you not use physiotherapy-related apps because you do not have time due to heavy patient care?	111	47.8	121	52.2
Have you discussed with colleagues on the use of physiotherapy- related app?	114	49.1	118	50.9
Have you shared physiotherapy related apps with my professional colleagues?	108	46.6	124	53.4
Will endorse the development of more apps for the support of education in clinical practice?	181	78.0	51	22.0
Can usage of smartphones in-front of your patients during consultation reduce trust and confidence of patients in the therapist?	143	61.6	89	38.4
Is it useful to guide your patients regarding home-exercise plans by using smartphone apps?	167	72.0	65	28.0
Physiotherapist should avoid the use of smartphones in front of patients during consultation?	154	66.4	78	33.6
Physiotherapist should explain to patients whenever he wishes to use smartphones apps during consultation?	118	50.9	114	49.1

DISCUSSION

This study reveals that while smartphone ownership and awareness of physical therapy-related applications are low among physical therapists, actual usage varies significantly due to factors such as time constraints, perceived impact on patient-therapist relationships, and trust during consultations. These findings are consistent with previous studies, such as Zafonte et al. (2021), which reported that over 85% of physical therapists owned smartphones, yet only 40% regularly integrated them into clinical practice [9]. Similarly, a study by Silva et al. (2020) found that although 78%

of therapists were aware of at least one clinical app, just 32% used them consistently [10].

The usage patterns in our study were further influenced by variables such as age, gender, level of qualification, years of experience, and workplace setting. Younger therapists and recent graduates showed a higher likelihood of app adoption, reflecting findings from Ahmad et al. (2019), who observed that therapists under 35 were twice as likely to use mobile applications in their daily workflow [11]. Gender differences were also noted, aligning with the research by Chen et al. (2022), which reported that male therapists had a slightly higher inclination toward technology integration, though the gap is narrowing [12].

Our study also emphasizes the role of clinical setting. Therapists in private clinics demonstrated greater flexibility in adopting technology compared to those in government or high-volume hospital settings, where institutional policies or time constraints often limit smartphone use. This is corroborated by Ramanujam et al. (2020), who identified administrative barriers as a major challenge to digital tool implementation in public healthcare facilities [13].Importantly, our study highlights therapists' concerns about using smartphones during patient interactions. Many expressed hesitation, fearing it could compromise professionalism and patient trust—findings that mirror those of Johnson & Park (2021), who reported that 60% of therapists were uncomfortable using phones in front of patients due to perceived ethical concerns [14]. Training programs focusing on appropriate smartphone use, professional etiquette, and patient confidentiality may help mitigate these issues and promote balanced integration.While our findings shed light on the current landscape, further research with larger sample sizes and diverse geographic representation is needed to deepen understanding and validate patterns. Additionally, targeted awareness campaigns and workshops could promote not only the benefits but also practical strategies for integrating smartphone applications into evidence-based practice. Studies like those by Moffet et al. (2022), which found that app-based exercise programs improved adherence by 30% in outpatient rehabilitation settings, underscore the real-world potential of such tools [15].

In summary, bridging the gap between awareness and effective utilization of physical therapy-related smartphone applications is essential for modernizing rehabilitation practices and enhancing patient outcomes.

CONCLUSION

The limited awareness and use of physical therapy-related smartphone applications among therapists is concerning, given their potential to enhance patient care and treatment outcomes. These tools can support clinical decision-making, streamline home exercise planning, provide patient education, and promote self-management. However, factors like time constraints and the patient-therapist relationship influence their adoption. Greater integration of these applications can improve access to evidence-based practices, treatment protocols, and patient record management in clinical settings.

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