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Awareness, perception and acceptability of digital physiotherapy intervention among Malaysian physiotherapist

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ABSTRACT

Digital health intervention (DHI) can solve the patient's problem, such as geographical inaccessibility, delayed provision of care, low-level adherence to clinical protocols, and financial burden. DHI does not necessary to work as a substitution for a functioning health system but helps strengthen its function. Therefore, this study aimed to determine the awareness, perception, and acceptability of digital physiotherapy intervention (DPI) among Malaysian physiotherapists. A total of 209 practicing physiotherapists representing all the regions in Malaysia participated in this online self-reported questionnaire, including demographics profile, continuous professional development, awareness, perception and acceptability of DPI. Analyzed the collected data to determine the knowledge of DPI by using descriptive statistical methods. A 75.1% of the Malaysian physiotherapist aware of digital physiotherapy intervention, 69.38% perceived it reduces the cost for face to face, reduce the time for traveling 47.85%, improve adherence to exercises 42.58%, 78% of them agree with the DPI and 75.1% of them accepted to recommend the digital tools to their patient. Malaysian physiotherapists are aware, agree and recommend the digital physiotherapy intervention to their treatment plan. However, it should still raise awareness about digital physiotherapy intervention to lead them to the future. Developing new digital tools, utilization, and overcoming the various healthcare institutions' low acceptability considering the cost, conventional interventions, and time-consuming should be strategized in Malaysia.

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1. INTRODUCTION

The arrival of the digital era computers, communication, and the impending era of cognitive computing has altered our modern culture. The roots of this digitalization transformation go deep and are widely dispersed throughout the world [1]. According to the Fourth Industrial Revolution (IR 4.0), artificial intelligence will take many future jobs. Furthermore, to improve the delivery of health care for diverse illnesses, a variety of electronic (eHealth), mobile (mHealth), telehealth, and telemedicine approaches have been created [2] that collectively referred as digital health.

According to the World Health Organization (WHO) [3], the digital health intervention defined as digital and mobile technologies is used to support health system needs. Therefore, the WHO recommends emerging digital intervention to healthcare for improvement that can solve the patient's problem, such as geographical inaccessibility, delayed provision of care, the low-level of adherence to clinical protocols, and

costly to the patient. It has the potential to strengthen the coverage and quality of health services. The digital health intervention does not work as a substitution for the functioning health system but enhances the health system function [4].

The adherence to the therapeutic exercise is the key to benefit in a clinical outcome such as the physical function, pain and quality of life. A recent study showed that methods to improve the patient adherence with medical intervention need to be multifactorial and be provided in combination with conventional care, the reminder, information, self-monitoring, reinforcement, counselling, family therapy, telephone follow-up, psychological therapy, supportive care and education. There is numerous digital physiotherapy intervention in the form of web-based or mobile application programmers such as "Neuroforma" [5] and "Taxonomy for rehabilitation of knee conditions (TRAK)" [6] which assist the rehabilitation at home. These technologies are tools that can help physiotherapists and the general public have more efficient workflows and will transform rehabilitation from an episodic to a continuous-care approach, enabling patients to get integrated therapy that is smoothly integrated into their daily life [7].

It is believed that digital physiotherapy intervention benefits the patient's performance, self-management, and adherence to the exercise program at home and in improving the patient's health status as stated in a narrative review [8]. Patient-centred digital applications can provide recovery with multifunctional support, including evidence-based education, support for specific self-care activities, biometrics and symptom monitoring, encourage contact between medical professional and patient, and promote holistic self-management. Nonetheless, there are many limitations, including limited usability, awareness and training of current and the emerging digital apps, limited participation of eligible rehabilitation health care providers in the development and testing of these tools [9].

Dicianno [10] concluded that advancement of mHealth technology had altered the way we provide and think about giving treatment to patients with chronic conditions and how people maintain their health and well-being in the community; however, concerning the long-term consequences, acceptability, costs and risks of such interventions that require further study. In 2020, Coronavirus disease 2019 (COVID-19) an outbreak had affected 213 countries and the Government of Malaysia enforced Movement Control Order, which begins on March 18, 2020 [11]. Malaysia's telehealth industry growth during COVID-19 pandemic and teleconsultation services were established. Malaysia aspires to be a nation of healthy individuals, families, and communities by implementing a health-care system that is "equitable, affordable, efficient, technologically appropriate, environmentally adaptable, and consumer friendly, with a focus on quality, innovation, health promotion, respect for human dignity, individual responsibility, and community participation for improved quality of life [12]. We must guarantee that we learn in the same way from this period of struggle (COVID-19), and that we sustainably implement this new dawn of digital health practices in future care models [13].

The pandemic led Malaysian physiotherapists to adopt cutting-edge remote methods and digital tools to improve and adhere to their clients' treatment procedures. Because the DPI is a novel approach of treating or consulting clients, it is important to understand the physiotherapist's level of awareness, acceptance, and perspective. So that we can break down obstacles and raise awareness about how to use digital interventions. Therefore, this study aimed to determine the level of Awareness, Perception and Acceptability of Digital Physiotherapy Interventions among Malaysian Physiotherapist.

2. RESEARCH METHOD

2.1. Study design and procedure

A cross-sectional survey questionnaire was developed, validated and distributed through an online platform between February 2020 and April 2020. Total 209 Malaysian Physiotherapist representing all the regions consented to and responded to the five-section questionnaires. The questionnaire addresses the demographics profile, which includes gender, age, and level of education, work experience and sectors, followed by their continuous professional development, awareness of digital interventions, benefits and limitation of digital intervetions and acceptability in terms of not recommending and disagreeing of DPI. Collected data statistically analyzed and discussed as shown in as shown in Figure 1.

2.2. Ethical

Obtained Ethical approval before the data collection from the Faculty of Health and Life Sciences – Research and Ethical Committee, INTI International University (INTI-IU/FHLS-RC/BPHTI/7NY12019/002). Any benefits, possible risks, or inconveniences and rights to withdraw anytime during the study's survey clearly explained before the consent obtained from the participated Malaysian Physiotherapist.

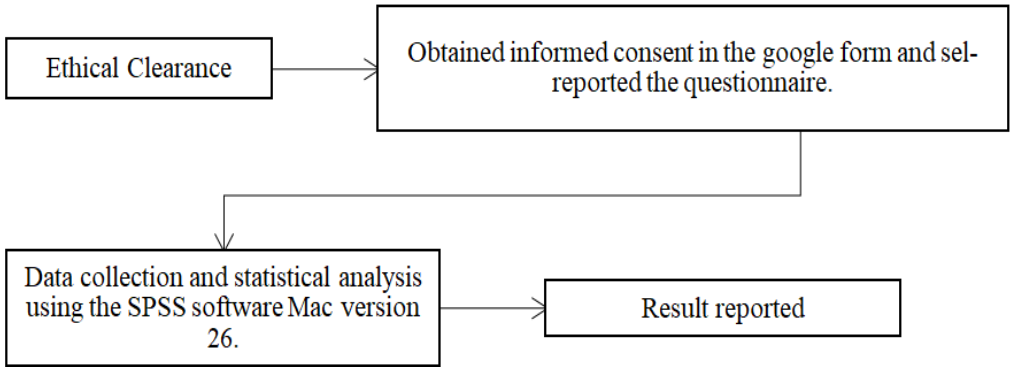

Figure 1. Flowchart of the research process

2.3. Statistial analysis

IBM statistical package for the social sciences (SPSS) in Mac OS Version 26 was used to analyze subjects' demographic data using descriptive statistics, including frequency distribution, percentage, mean and standard deviation. The other sections, such as continuous professional development, awareness, perception, and acceptability of DPI, were analyzed using descriptive statistics consisting of frequency distribution and percentages.

3. RESULTS AND DISCUSSION

Overall, the mean age is 29.93±4.69. Highest education level answered the questionnaire are diploma graduates, which is 44.5% currently the diploma graduates represent more percentage when compare to other level. Since private practice are booming in Malaysia 53.14% respondents are from private centers and home/locum physios followed by hospital set up including private and government 38.8% as shown in Table 1.

Table1. Demographic data

	n	Percent
Gender		
- Male	85	40.70%
- Female	124	59.30%
Age, Mean ±SD	29.93±4.69	
Level of education		
- Diploma certificate	93	44.5
- Advanced diploma	30	14.4
- Bachelor's degree	76	36.4
- Master degree	9	4.3
- Doctoral degree	1	0.5
Work experience Mean +SD	5.79±3.83	
Working sector		
- Government hospital	42	20.10%
- Private hospital	39	18.70%
- Community setting	4	1.90%
- Clinics/centers	72	34.44%
- Home physio	39	18.70%
- Higher education institute	13	6.20%

Malaysian Physiotherapist updates frequently their knowledge 78%, which is the key factor in adopting recent advances in evidence based Physiotherapy practice 46.4% as shown in Table 2. Due to frequent updating the knowledge, 75.1% of them are aware of DPI. The pathways to get awareness, the majorities are online 60.3%, but unfortunately 55.5% didn't notice physiotherapists using DPI in Malaysia as shown in Table 3. Malaysian Physiotherapist perception on the benefits of DPI is equally divided among various areas that include communication, to check patient health status, provide educational and training content, provider to provider telecare and decision making support as shown in Table 4.

Table 2. Continuous professional development

		n	Percent
Frequent update	No	46	22%
	Yes	163	78%
Last update	Recently	87	41.6%
	< 1 Year	62	29.7%
	1 - 5 Years	55	26.3%
	5-10 Years	4	1.9%
	> 10 years	1	0.5%
Update method	Through another physiotherapist	43	20.6%
	Journal articles	97	46.4%
	Advertising campaign	38	18.2%
	Attend courses or workshop	31	14.8%

Table 3. Awareness of digital physiotherapy intervention

		n	Percent
Awareness of DPI	No	52	24.9%
	Yes	157	75.1%
Knowledge of digital intervention	No	64	30.6%
	Yes	145	69.4%
Pathway to get the information	Book	6	2.9%
	Online	126	60.3%
	Friend	20	9.6%
	Colleague	27	12.9%
	Courses	21	10%
	Campaign	9	4.3%
Notice people ustilising DPI	No	116	55.5%
	Yes	93	44.5%

Table 4. Benefits of digital physiotherapy intervention

	n	Percent
Provider-to-Provider telemedicine	84	40.19%
Targeted patient communication	107	51.20%
Health worker decision support	78	37.32%
Tracking of the patient's health status and services	72	34.45%
Provision of educating and training the health worker	44	21.05%

High percentage of Malaysian Physiotherapist assumes that DPI will costlier and it is not accessed by all the clients as shown in Table 5. However from the patient point of view, nearly 50% of therapist understood, accepted and said it could reduce the cost for face to face, reduce the time for travelling and more importantly it improves adherence to exercises as shown in Table 6. DPI was mostly accepted by Malaysian physiotherapists, except few of them do not recommend because it cannot ensure exercise adherence (0.96%) and not widely used (4.78 %), and 1.91% percent believe it will not benefit the patient and is not a holistic approach as shown in Table 7.

Table 5. Limitation of digital physiotherapy intervention

	n	Percent
Cost	123	58.85%
Inaccessibility to patient	134	64.11%
Time consuming	26	12.44%
Not suitable for all ages	22	10.53%
Low public acceptability	7	3.35%
Unstable connectivity	5	2.39%
Not for all patients	51	24.40%

Table 6. Benefits of digital physiotherapy intervention for patients

	n	Percent
Reduce time for travelling	100	47.85%
Reduce cost for face to face	145	69.38%
Improve adherence to exercises	89	42.58%
Improve self-management	25	11.96%
Learn more about diseases and exercises	23	11.00%

Table 7. Reasons for disagreeing and not recommending the digital physiotherapy intervention

		n	Percent
Reasons to disagree	Troublesome	3	1.44%
	Not for physiotherapy services	4	1.91%
	Delaying patient progression	5	2.39%
	Not applicable	3	1.44%
	Face to face is better	7	3.35%
	Cannot assess patient	11	5.26%
	Digital physiotherapy intervention is not well developed yet	1	0.48%
	Not suitable for the patient who needs manual therapy	6	2.87%
	Cannot track patient progression	6	2.87%
	Cannot ensure adherence of exercises	2	0.96%
Reasons of not recommend digital health application to the patient	Not common to use	10	4.78%
	Does not bring benefits to patient	4	1.91%
	Not helpful	6	2.87%
	Not realistic	1	0.48%
	Applications not holistic	4	1.91%
	Not suitable for all patients	6	2.87%
	Not necessary	3	1.44%
	Physiotherapy treatment does not work well without physical contact.	4	1.91%

3.1. Discussion

The results showed that 75.1% of Malaysian Physiotherapist is aware of DPI and 69.4% understand the facts about it but in contrary more than 50% do not notice people using digital physiotherapy intervention. Indicating that digital physiotherapy interventions are still not common to use even though they are aware, which is supported by Malliaras *et al.* [14] that although allied health clinicians used telehealth during the coronavirus pandemic, they found constraints that may prevent continuing use of telehealth beyond the current pandemic.

Furthermore, almost half of them think they could benefit from digital physiotherapy intervention, while the other half believe they cannot or maybe helped. Majority of them agree that the targeted patient communication and provider-to-provider telemedicine are the most significant benefits. WHO stated that the provider-to-provider telemedicine could improve the access to quality care and reduce the isolation of health workers a remote setting. The targeted client communication indicates transmitting health content or information to a specific patient based on their health status and demographic profile [3]. Approximately 70% of Malaysian Physiotherapist agreed that the digital tools could solve the problems for patients, which supported in a narrative review by Rajkumar *et al.* [8] that digital intervention believed to have an impact on the client's performance, self-management and improve adherence of exercise program at home.

Developing and creating awareness on digital intervention tools are crucial as 69.38% of Malaysian Physiotherapist accepted that it could reduce the cost for face-to-face, time for travelling 47.85%, improve adherence to exercises 42.58%, improve self-management 11.96% and get more information about diseases and practices 11%. Research shows the viability of a digital health program in cardiac rehabilitation, reducing cardiovascular risk factors and showing dramatic decreases in clinically relevant results over regular cardiac rehabilitation, such as re hospitalizations and emergency department visits [15], [16]. Another study reveals that medical community is set to confront significant structural changes that will alter our workflow and communication channels, with telemedicine emerging as the most viable alternative for protecting the safety of health care workers and patients [17]. Further analysis in our study identified that; equally, they feel that there is still a potential limitation of DPI due to affordability of the cost by the patient or the institute 58.85%, inaccessibility to patient 64.11%, time-consuming in delivering the care 12.44% and some of the least limitation are connectivity issues, not suitable for all populations and low public acceptability. WHO [4] stated that emerging digital tools of intervention in healthcare could solve the patient's problem, such as geographical inaccessibility, delayed provision of care, low-level of adherence to clinical protocols, and costly to the patient.

A study reported that the combination of digital physiotherapy intervention and face-to-face physiotherapy increases their confidence and motivation during their rehabilitation [6], which is supported more than half of Malaysian Physiotherapist, stated that they would be applying digital tools in their treatment

plan. Signifying, they agree with digital health and willing to step into the future. Moreover, 69.4% agree that combining digital health intervention with face-to-face physiotherapy sessions is better than conventional ones. On the contrary, findings show that an App-based intervention is an efficient treatment for Low Back Pain patients and is superior in conjunction with online physiotherapy education as a multidisciplinary back pain app [18]. About 78% of Malaysian physiotherapists agree and 75.1% ready to recommend the digital physiotherapy intervention. However, still, less than 5% disagree and not recommend DPI because face to face is the essence of physiotherapy care, digital tools are sometimes unable to assess the patient as the explanation of discord, devices are not well developed, complicated in tracking progression, not realistic to all population and even at times, cannot deliver holistic care to the clients. Even in a study done by Andrews *et al.* [19] Older adults are encouraged to use digital technology to enhance their mental health. However, there are still obstacles that developers need to overcome to access them for this demographic.

In our study, Malaysian Physiotherapist prefers face-to-face physiotherapy sessions as some techniques or treatment, which cannot be delivered through digital intervention, which is underpinned by L Bearne et al [20] in which, they concluded that physiotherapists should consider combining evidence-based remote evaluation and tele-rehabilitation with face-to-face consultations. A study conducted to validate the feasibility of a remote patient monitoring (RPM) system. The results found that RPM evaluate patients undergoing total knee arthroplasty (TKA) in mobility and rehabilitation compliance, which found engaging [21]. Furthermore, digital tools are still developing as we are still in the age of promise rather than delivery and limited confidence and knowledge to use of telehealth [22], [23]. Malaysian Physiotherapist that 75.1% accepted recommending digital tools for intervention in the future to the patient, which is, supported the Digital health approaches that can contribute positively to reducing the multi-faceted burden on the individual, the economy, and society [24].

In overall, awareness should create among all Malaysian Physiotherapist on the digital physiotherapy intervention in line with digital health Malaysia (DHM), which includes health professionals, researchers, and industry collaborates to advance the digital health agenda. They have a clear vision of promoting for future health that is accessible, available and affordable. One of the strategies is go-to-market, which enable an unbiased platform to promote digital health solutions. Developing new digital tools to overcome the acceptability of digital intervention among Malaysian Physiotherapist is crucially supported by choosing the right theory to direct the implementation process and strategy selection; ensuring that adequate attention is paid to implementation planning and a versatile approach to reacting to the emerging barriers [25]. Furthermore, both training and regular exposure to telehealth practice promotes acceptance and confidence [23], [26]-[29] and through education and timely information, the targeted information offered has the ability to improve patient outcomes [30].

The limitation of this study included the cross sectional design, which precluded us from establishing the causal link, so in future incorporating the digital intervention into the real world practice and accessing the acceptability of DIP will be more reliable. Larger participants of Physiotherapists in Malaysia could be recruited for generalizing the result. In future, we can study whether working experience or qualification or any other demographic profile is associated with knowledge of digital intervention.

4. CONCLUSION

The Malaysian physiotherapists are aware, agree and recommend the digital physiotherapy intervention to their treatment plan. However, it should still raise awareness about the digital physiotherapy intervention to lead them to the future. The digital physiotherapy intervention's perception even controversy as they are still not familiar with digital tools and its appropriate benefits and only some of them are using digital tools. Developing new digital tools, its utilization, and overcoming the various healthcare institutions' low acceptability considering the cost, conventional interventions, and time-consuming should strategize in Malaysia.

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