

# Telerehabilitation perceptions and experiences of physiatrists in a lower-middle-income country during the COVID-19 pandemic

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## Abstract

**Background:** The COVID-19 pandemic catalyzed the adoption of telerehabilitation in various health care settings. However, there was neither a preexisting national guideline in the Philippines nor an internationally agreed upon standard for telerehabilitation. The literature lacks nationwide studies documenting how physiatrists perceived and experienced telerehabilitation during the pandemic.

**Objective:** To determine the perceptions and experiences of physiatrists in the Philippines regarding telerehabilitation.

**Design:** Online survey originally developed by the authors with inputs from local experts in telehealth or telerehabilitation.

**Setting:** Nationwide, involving board-certified physiatrists practicing in the Philippines.

**Participants:** Fellows of the Philippine Academy of Rehabilitation Medicine (PARM) ( $N = 259$ ) with Internet access.

**Main Outcome Measures:** Self-reported telerehabilitation knowledge, skills, and experience; key concerns; preferred clients, service offerings, and methods (technology, duration, charging).

**Results:** The respondents ( $n = 161$ ; 62.2% response rate) had a mean age of  $48.1 \pm 9.6$  years, were mostly female (57.8%), and mostly practiced in private hospitals and urban settings. The majority reported inadequate telerehabilitation knowledge (61.5%), skills (58.4%), and experience (72.1%). The most common sources of telerehabilitation knowledge were colleagues (52.8%), PARM (51.6%), and telemedicine-related websites (41.6%). Most of the respondents preferred to conduct telerehabilitation with former patients over new ones and prescribe telerehabilitation programs for physical, occupational, psychological, and speech-language therapy but not for swallowing therapy. Videoconferencing was the most common telerehabilitation method. More than half of the respondents charged lesser fees for telerehabilitation compared to in-person consultations. Although the majority recognized the need for telerehabilitation, their key concerns included the lack of thorough patient examination and medicolegal liability issues.

**Conclusion:** Despite their limited baseline knowledge, skills, and experience regarding telerehabilitation, many physiatrists in the Philippines learned to adopt this service delivery method during the pandemic. Their perceptions and experiences could be used in formulating practice-based guidelines and strategies to improve the conduct of telerehabilitation in the country.

**KEYWORDS**

COVID-19, Philippines, rehabilitation, telehealth, telemedicine, telerehabilitation

**INTRODUCTION**

In March 2020, the World Health Organization (WHO) declared the coronavirus disease 2019 (COVID-19) a pandemic.<sup>1</sup> Shortly thereafter, the Philippine government put the entire country on code red sublevel 2 that imposed stringent social distancing measures across different aspects of life, including health care.<sup>2</sup> In particular, the in-person access to medical services was limited to severe COVID-19-related or other life-threatening conditions to prevent contagion and health care system collapse. Meanwhile, access to center-based rehabilitation was suspended indefinitely in various parts of the country that had an increasing number of COVID-19 cases.<sup>3</sup> Similar to the response of WHO, the Philippine Academy of Rehabilitation Medicine (PARM), the sole physical medicine and rehabilitation (PM&R) specialty society in the Philippines, recommended telerehabilitation as an alternative way of providing services remotely to patients with new-onset or continued rehabilitation needs.<sup>4,5</sup>

Before the pandemic, telerehabilitation, which is the use of telecommunication technologies to deliver rehabilitation care over a distance,<sup>6</sup> had not been widely implemented in the Philippines and possibly in other lower-middle-income countries as well.<sup>3,7-9</sup> The barriers to the adoption of telerehabilitation in the Philippines remain understudied. Nonetheless, a recent systematic review identified the following barriers based on local literature: lack of awareness and evidence regarding telerehabilitation, resistance to change, lack of technical readiness and resources, lack of training on virtual patient evaluation and management, and lack of established national or international guidelines.<sup>10</sup> The present study aimed to determine the physiatrists' various telerehabilitation perceptions and experiences at the height of the unprecedented global crisis. The results of this study could help formulate best practice guidelines and strategies to further improve the adoption and conduct of telerehabilitation in the country.

**METHODS**

A nationwide cross-sectional online survey was conducted among the fellows of PARM ( $N = 259$ ), consisting of local board-certified physiatrists. Purposive sampling, specifically in the form of total enumeration, was employed to recruit potential respondents. The inclusion criteria were as follows: (1) fellow of good standing, as recognized by PARM, (2) actively practicing PM&R anywhere in the Philippines before the pandemic, (3) with voluntary informed consent to participate in the study, and (4) with any telecommunication device (eg, mobile

phone, tablet, computer) and stable Internet connection to access the survey.

An original self-administered questionnaire was developed by the study authors based on the review of related literature and inputs of local experts in telehealth or telerehabilitation. The questionnaire underwent pretesting and several revisions before its final version (Appendix 1) was approved. The following parts comprised the questionnaire: (1) demographic data (age, gender, area/s of practice), (2) perceptions regarding telerehabilitation (need for telerehabilitation; source/s of information; self-reported knowledge, skills, and experience; potential clients; PM&R services; key concerns or apprehensions), and (3) details about their telerehabilitation experiences and preferences. Upon obtaining approval from the research ethics board of the study institution and the executive committee of PARM, all fellows received an e-mail containing the informed consent form and link to the online survey, which could be accomplished within approximately 10 minutes. They were given 4 months to access the survey. They were reminded about the study every 2 weeks through short messages posted by the study team in the official private social media groups of the fellows with the approval of the group chat administrators (ie, members of the PARM Executive Committee). All the data gathered from the study were kept confidential. Descriptive statistics were used to analyze the results.

**RESULTS**

A total of 161 fellows participated in the study (62.2% response rate). The respondents had a mean age of  $48.1 \pm 9.6$  years, and the majority were female, affiliated with private hospitals, and based in urban settings (Table 1).

The majority reported inadequate telerehabilitation knowledge (61.5%), skills (58.4%), and experience (72.1%) before the pandemic. The respondents' most common sources of information on telerehabilitation during the pandemic included the following: interaction with colleagues (52.8%), PARM (51.6%), various telemedicine-related websites (41.6%), online courses (38.5%), and conferences/webinars (37.3%) (Table 2). Seven respondents (4.3%) reported no prior knowledge of telerehabilitation.

Over 95% of the respondents recognized the need for telerehabilitation during the COVID-19 pandemic, and almost 80% could see its continued role beyond the pandemic. Meanwhile, 68.3% reported practicing telerehabilitation during the pandemic. Table 3 presents the respondents' perceptions of appropriate patients and services associated with telerehabilitation. Most of

**TABLE 1** Demographic characteristics of the respondents (*N* = 161)

Demographic characteristics	<i>n</i> (%)
Age group, years	
30–39	27 (16.8)
40–49	58 (36.0)
50–59	62 (38.5)
≥60	14 (8.7)
Gender	
Female	93 (57.8)
Area/s of practice	
Private institution	139 (86.3)
Public institution	103 (64.0)
Urban-based	63 (39.1)
Rural-based	18 (11.2)

**TABLE 2** Physiatrists' sources of information on telerehabilitation (*N* = 161)

Sources of information	<i>n</i> (%)
Interaction with colleagues	85 (52.8)
Philippine Academy of Rehabilitation Medicine	83 (51.6)
Telemedicine-related websites	67 (41.6)
Online courses	62 (38.5)
Conferences or webinars	60 (37.3)
Infographics or educational brochures	50 (31.1)
Actual experience as telemedicine or telerehabilitation provider	45 (28.0)
Other specialty or subspecialty societies or organizations	37 (23.0)
Scholarly publications	31 (19.3)
Witnessed a telemedicine or telerehabilitation encounter	29 (18.0)
Grey literature (unpublished materials, institutional documents)	24 (14.9)
Advertisements	23 (14.3)
International rehabilitation medicine societies or organizations	22 (13.7)
Formal in-person training on telemedicine or telerehabilitation	17 (10.6)
No prior information or knowledge	7 (4.3)
YouTube™	1 (0.6)

the respondents perceived telerehabilitation to be more appropriate for former or old patients (86.3%) compared to new ones (47.2%). A minority of respondents (32.9%) felt unaccompanied patients were appropriate for telerehabilitation, whereas a majority felt that patients accompanied by either a caregiver or a referring health care provider were appropriate for telerehabilitation. Meanwhile, psychological interventions (85.0%) and

**TABLE 3** Perceptions on potential clients and services for telerehabilitation (*N* = 161)

Perceptions on telerehabilitation	<i>n</i> (%)
Potential clients	
Former patient	139 (86.3)
Patient and caregiver together	138 (85.7)
Patient and referring health care provider together	123 (76.3)
New patient	76 (47.2)
Patient alone (without caregiver)	53 (32.9)
Referring health care provider only (even without patient)	40 (24.8)
Caregiver alone (even without patient)	20 (12.4)
Rehabilitation services	
Home instructions/ home exercise program	150 (93.1)
Diagnostic request	147 (91.3)
Electronic prescription	142 (88.1)
Rehabilitation program or referral	138 (85.7)
Psychological interventions	137 (85.0)
Speech-language therapy (excluding swallowing interventions)	126 (78.2)
Virtual reality or gamification of therapy	121 (75.1)
Physical therapy	115 (71.4)
Occupational therapy	111 (68.9)
Medical certificate	99 (61.4)
Screening, planning, or evaluation for prosthesis, orthosis, or any assistive device	71 (44.0)
Swallowing evaluation and exercises	46 (28.5)

speech-language therapy (excluding swallowing) (78.2%) were the most common therapeutic services appropriate for telerehabilitation.

Among the various teleconsultation methods (Table 4), videoconferencing was the most preferred (84.5%), followed by Internet-dependent audio call such as via social media (43.5%), and Internet-independent phone call (38.5%). Less than 30% of the respondents were amenable to conducting teleconsultations through e-mail (26.7%), social media instant messaging (26.1%), and text messaging (21.1%). There were more respondents who preferred using a customized telerehabilitation application (55.9%) over a generic telemedicine application (42.2%). There were three respondents who did not choose any of the aforementioned teleconsultation methods. In terms of teleconsultation duration, most respondents agreed that less than 30 minutes was acceptable.

As shown in Table 4, more than half of the respondents preferred to charge lesser professional fees for teleconsultation compared to in-person consultation. The majority reported fees between PhP 501.00 to 1000.00 (equivalent to 10 to 20 USD) per teleconsultation. Among the 49 respondents who specified their professional fees for a teleconsultation,

**TABLE 4** Preferred teleconsultation methods, duration, and professional fee ( $N = 161$ )

Preferences regarding teleconsultations	<i>n</i> (%)
<b>Methods</b>	
Video call using any application	136 (84.5)
Use of customized telerehabilitation application	90 (55.9)
Audio call using any online application	70 (43.5)
Use of any downloadable generic telemedicine application	68 (42.2)
Phone call (offline)	62 (38.5)
E-mail	43 (26.7)
Instant messaging through social media	42 (26.1)
Text messaging	34 (21.1)
None of the above	3 (1.9)
<b>Duration</b>	
<30 min	100 (62.1)
<1 h	45 (28.0)
>1 h	5 (3.1)
None of the above	3 (1.9)
<b>Professional fee</b>	
Less than in-person consultation	86 (53.4)
Equal to in-person consultation	36 (22.4)
Greater than in-person consultation	29 (18.0)
Part of a rehabilitation package	9 (5.6)
Free of charge	1 (0.6)
<b>Payment methods</b>	
Bank transfer to personal account	138 (85.7)
Through a payment portal (eg, PayPal, PayMaya)	130 (80.7)
Through the hospital or clinic billing	100 (62.1)
Through a third-party payer (ie, private insurance company)	59 (36.6)
Through PhilHealth (the Philippines' national health insurance program)	35 (21.7)
In-person payment	34 (21.1)
Cash	33 (20.5)
Check	24 (14.9)
None of the above	2 (1.2)
<b>Others</b>	
Credit card	1 (0.6)
Customized telerehabilitation platform with its own online payment feature	1 (0.6)

the average amount was PhP 700.00 (15 USD). One respondent preferred telerehabilitation to be free of charge, whereas nine preferred telerehabilitation as part of a rehabilitation package. Regarding payment methods (Table 4), the majority (85.7%) selected bank transfer to personal account, and one respondent recommended a customized telerehabilitation platform with its own online payment feature.

Although the majority perceived telerehabilitation to be useful for clinical purposes (93.2%), education/

training (82.6%), and research (63.4%), the psychiatrists reported many key concerns about its use (Table 5). The limitation of physical examination done via teleconsultation was a concern in 98.1% of the respondents. Meanwhile, 13.7% reported to have no concern or apprehension at all about telerehabilitation.

## DISCUSSION

The present study showed that most of the respondents practiced some form of telerehabilitation during the COVID-19 pandemic, but among the respondents there was a high prevalence of inadequate knowledge, skills, and experience with telerehabilitation delivery. The in-person service delivery model for consultation and therapy services had always been the standard practice of PM&R in the Philippines. Hence, the unprecedented widespread quarantine during the pandemic had caught many respondents unprepared for the sudden shift to virtual care.<sup>3</sup> Some of the respondents turned to their colleagues, the interim guidelines released by PARM, and various telemedicine-related websites to learn more about the proper conduct of virtual care. The majority perceived that telerehabilitation was appropriate for former patients and those accompanied by a caregiver or a referring health care provider. Psychological and speech-language interventions, which might not heavily rely on hands-on assessment or treatment, were the most common therapeutic services considered appropriate for telerehabilitation. Videoconferencing using any application was the most preferred telerehabilitation method. More than half of the respondents charged lesser professional fees for teleconsultations compared to in-person consultations. Although the majority acknowledged the need for telerehabilitation during and beyond the pandemic, the respondents had various relevant concerns, such as limitations in physical examination and medicolegal liability issues. The primary data gathered in this nationwide survey could be useful in formulating national policies, best practice guidelines, and quality improvement strategies related to telerehabilitation.

Unlike certain developed countries that have established telerehabilitation systems, processes, and evidence,<sup>6,11-13</sup> low- and middle-income countries have yet to embrace the modernization of PM&R service delivery to overcome geographic, economic, workforce, time, and disability-related barriers to traditional or in-person health care.<sup>8,10,14</sup> Several human, organizational, and technical challenges preventing the progress of telerehabilitation in a low-resource country were identified in a recent systematic review. Examples of these human challenges were the health care providers' lack of initiative and leadership to improve old customs and innovate and lack of confidence and training in performing remote assessment and management, as well as the patients' lack of awareness and

**TABLE 5** Psychiatrists' key concerns about using telerehabilitation (*N* = 161)

Key concerns	<i>n</i> (%)
Limited examination through virtual consultation	158 (98.1)
Medicolegal liability issues	153 (95.0)
Lack of secure electronic medical record	151 (93.8)
Unreliable Internet	150 (93.2)
Data privacy and security issues	144 (89.4)
Technical issues on the side of the patient	142 (88.2)
Lack of capability to share patient records securely	139 (86.3)
Patient safety concerns	139 (86.3)
Lack of secure telemedicine platform	138 (85.7)
No standardized professional fees and payment scheme	138 (85.7)
Lack of secure telemedicine equipment	137 (85.1)
Lack of personal interaction with patient	136 (84.5)
Lack of technical or telemedicine support staff	131 (81.4)
No established guidelines	131 (81.4)
Limited experience	127 (78.9)
Informed consent issues	123 (76.4)
Health care provider's lack of acceptance	122 (75.8)
Patient's lack of acceptance	122 (75.8)
Uncertainty about effectiveness	122 (75.8)
Ethical issues	121 (75.2)
Lack of health care provider's technical skills	121 (75.2)
Limited progression of exercises	120 (74.5)
Lack of administrative support	112 (69.6)
Limited knowledge	110 (68.3)
Limited history through virtual consultation	104 (64.6)
Costs for patient	103 (64.0)
Lack of willingness to share patient's health record with other health care providers	101 (62.7)
Costs for health care provider	97 (60.2)
Limited evidence	92 (57.1)
Scheduling of teleconsultation	87 (54.0)
No concern or apprehension at all	22 (13.7)

acceptance of the benefits of telerehabilitation.<sup>10</sup> In terms of organizational challenges, the lack of clear national policies and standards and limited budget allocation for telerehabilitation were cited.<sup>10</sup> Meanwhile, the technical factors were mostly related to inadequacies in telecommunication infrastructure.<sup>10</sup> Some of these secondary data were consistent with the first-hand information found in the present study particularly regarding the respondents' key concerns about telerehabilitation. For instance, the respondents reported concerns about liability and data privacy, which were indeed important policy issues according to Seelman and Hartman.<sup>15</sup> Such issues could potentially be addressed by improving the legal framework of telehealth in a country and building sustainable health information systems.<sup>16-19</sup> In the

Philippines, the National Telehealth Center under the National Institutes of Health at the University of the Philippines Manila has been working with the Department of Health, the National Privacy Commission, and the different medical and allied medical professional societies, including PARM, during the pandemic to ensure the proper delivery of health services through telehealth, while safeguarding the rights and safety of stakeholders (providers and consumers).<sup>19-22</sup> The existing provisional or interim guidelines created in the early part of the pandemic might have to be regularly updated over time, depending on the changing needs and practices of the stakeholders, to ensure the continuity of any telehealth endeavor.<sup>3</sup>

Telerehabilitation has a multifaceted role in PM&R practice even in a country with relatively lower resources.<sup>23</sup> Before the pandemic, telerehabilitation was tried in the Philippines but only in few academic institutions for purposes of research and community support that commonly employed the doctor-to-remote health care provider setup.<sup>3,24</sup> For instance, the Philippine General Hospital had partnered with a remote rural community in a hub-and-spoke model and accepted telerehabilitation referrals from the municipal health officer (MHO) colocated with the patient.<sup>23</sup> The MHO acted as a surrogate assessor and ensured the safety of the patient throughout each telerehabilitation session. During the pandemic, more rehabilitation professionals ventured into telerehabilitation for different purposes (clinical, teaching, research) and across practice settings (urban or rural, private or public), which then employed the direct doctor-to-patient setup.<sup>23</sup> There is currently no repository, website, or publication that summarizes local telerehabilitation efforts during the pandemic, but all these efforts may have common goals like work and service resumption, albeit different processes of implementation. Because telemedicine services in general were not commonly practiced throughout the country before the pandemic, there were no standard professional fee rates, methods, and online platforms for payment transactions. Unlike for in-person consultations prepandemic, health care providers commonly accepted bank transfer to their personal account directly from private patients before or after each telerehabilitation session during the pandemic. Many respondents in this study preferred charging lesser professional fees for teleconsultation (ranging from 10 to 20 USD) compared to in-person consultation (ranging from 10-30 USD).<sup>25</sup> To guarantee effective, safe, and ethical delivery of PM&R services, a national telerehabilitation standard may have to be carefully formulated, considering the variations in needs, practices, resources, cultures, and preferences of the stakeholders. In Saudi Arabia, for instance, a panel of PM&R experts and stakeholders collaborated in response to COVID-19 and established their country's telerehabilitation guidelines following the standards set by the American Telemedicine Association.<sup>26</sup>

Interestingly, despite the large proportion of respondents who claimed to practice telerehabilitation during the pandemic, there remained many concerns or issues about its use. It was reported in the literature that skepticism of clinicians, the supposed primary drivers of health care innovations, has been a significant barrier to telehealth efforts.<sup>3,10,27</sup> The various telerehabilitation concerns of physiatrists in the present study might be understandable, considering their self-reported inadequate knowledge, skills, and experience, which could be attributed to their lack of prior telehealth training or exposure in medical school and residency training. Relevant formal education or training was found to be a strong positive predictor of telehealth adoption.<sup>28</sup> Nonetheless, the circumstances brought by COVID-19 eventually moved rehabilitation providers to learn from each other and various resources (eg, webinars, online references) and adapt to the rapid changes in health care delivery worldwide. In parallel, other health care stakeholders, such as patients, care advocates, and third-party payors, also had to adapt.<sup>29</sup> For instance, patients became increasingly aware of different teletherapy services and reported high satisfaction after participation in a telerehabilitation program.<sup>23,29</sup> In the United States, private insurance companies in Massachusetts began paying for teletherapy services at the same rate as in-person visits during the pandemic.<sup>29</sup> In contrast, telerehabilitation, whether consultation or therapy, is not currently covered by third-party payors in the Philippines. Nevertheless, recent efforts leveraged by COVID-19 have been made to institutionalize telehealth that could complement the ongoing rollout of the Universal Healthcare Law throughout the archipelago.<sup>30</sup>

The present study is novel and timely as it provides first-hand nationwide data on the preferences, experiences, and concerns of physiatrists regarding telerehabilitation, which was gradually ushered into the new landscape of PM&R practice in the country during the pandemic. With a relatively high response rate, the study results can inform clinicians, patients, and policymakers about the prevailing telerehabilitation practices locally. The study, however, has the following limitations: (1) survey tool was not validated; (2) data gathered were self-reports; (3) sampling technique might have not represented the different cohorts comprising the target population; (4) purely online data collection might have missed essential information from fellows who had inadequate technical resources or knowledge to access the survey; and (5) focus group discussions and key informant interviews could have provided useful qualitative data to further explain the results of the survey.

## CONCLUSION

Despite their limited baseline knowledge, skills, and experience regarding telerehabilitation, many physiatrists

in the Philippines learned to adopt the virtual service delivery method during the pandemic. The limitations and concerns found in this study could be considered in improving the current and future use of telerehabilitation. The physiatrists' different perceptions regarding appropriate patients, services, and methods for telerehabilitation could be used in formulating practice-based guidelines and strategies to advance the practice of PM&R in the country.

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## DISCLOSURE

None.

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## SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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