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ТЕЛЕРЕАБИЛИТАЦИЯ ДЛЯ УПРАВЛЕНИЯ ХРОНИЧЕСКОЙ БОЛЬЮ

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TELEREHABILITATION FOR CHRONIC PAIN MANAGEMENT

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Резюме. Проблема хронической боли, с которой сталкиваются миллионы людей, является серьезной проблемой здравоохранения. Коммуникационные технологии, используемые в телереабилитации, позволяют клиентам, проходящим лечение боли, преодолевать географические препятствия. В настоящей статье определяется статус телереабилитации в лечении хронической боли и связывается текущая актуальность с будущими рекомендациями в этой области.

Ключевые слова: телереабилитация, хроническая боль, лечение боли.

Resume. The chronic pain issue that millions of people are grappling with is a major health problem. Communication technology used in telerehabilitation enables clients of pain management to surpass geographical obstacles. The present paper identifies the status of telerehabilitation in chronic pain care and it connects current relevance with future recommendations in that area.

Keywords: telerehabilitation, chronic pain, pain management.

Relevance. Telerehabilitation has a key role in chronic pain treatment as it provides remote healthcare access to people residing in remote areas, confined to their homes due to different reasons, or financially disadvantaged. Its main aim is to deliver affordable and efficient healthcare services that are patient-oriented and have the potential to curtail healthcare costs and improve patients' adherence to treatment. The situation of virtual health services was put in the limelight during the COVID-19 pandemic exposing its significance in the medical sector.

Aim: telerehabilitation measures for chronic pain management are primarily focused on the regulation of pain and the reduction of its intensity as well as patient guidance for self-care and the support of functional status and quality of life also the increase of care availability and the decrease of healthcare expenditure as well.

Objectives:

1. Thoroughly investigate the best technology for your objective and then make a thorough evaluation of everything. The more positive results were found when the three main points of compatibility with users, good price, and no difficulties in the system were discussed.

2. The main objective of the program will be the development and discovery of preventive, evidence-based protocols. In particular, it is essential that the treatment protocols are evidence-based.

3. Making sure that the program benefits are spread. If the patient had seen eco-friendly solutions for cleaning instead of nitrogen pollution we would definitely still be cost-

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efficient back or side. Awareness should be created for the program benefits through communication.

Materials and methods. A retrospective analysis and data gathering of different norms, regulations and guidelines like national institute of health https://pmc.ncbi.nlm.nih.gov, all India institute of medical science, american telemedicine association https://www.americantelemed.org as well as textbooks such as Telemedicine: A comprehensive Guide written by D. M. Got, J. C. W. Wong, 2020 and Telehealth and Telemedicine in Pain Management written by J.R. M naught on, R.H. Becker,2019. Some data was collected by sources such as researches on pubmed Central and researchgate.net and online sites like Cleveland clinic and mayo clinic.

Results and their discussion. Access to healthcare especially when patients are in need highly contributes to the recovery process, which society and the healthcare system benefit from. In the United States, 20.4% of adults suffer from chronic pain among which 7.4% have a particularly high impact on their lives and the groups most affected were the female population, the non-Hispanic whites and the people over the age of 65. It is not seldom that these patients need the proper coordination of their medical providers so that their communication is guaranteed and an interdisciplinary platform of care is established [1,9]. Unplanned barriers can be a very plausible reason for any kind of health care to be avoided in the first place, for example, the cases of the on-site visit are not feasible, inconvenient, or hardly safe.

There may also be other adverse conditions where healthcare professionals are under an obligation to eliminate these obstacles in a timely and efficient manner. One common cause of these issues is the lack of transportation which results in approximately 3.6 million people not being able to go to the doctor every year.

There is research that has taken 516 patients with chronic pain [5]. The results showed effects of telerehabilitation on patient-reported outcomes expressed as standardized effect sizes and coefficients. The arm 2 telerehabilitation group had greater improvement in function than the control arm 1 (between-group difference 1.3; 95% CI, 0.08-2.35; $P = .03$), a difference exceeding the AM-PAC-CAT's MCID of 1.The AM-PAC-CAT scores did not differ significantly between arms 1 and 3. Relative to control, both telerehabilitation interventions significantly improved pain interference (arm 2, −0.4; 95% CI, −0.78 to −0.09; $P = .01$ and arm 3, −0.4; 95% CI, −0.79 to −0.10; $P = .01$), and average pain intensity (arm 2, −0.4; 95% CI -0.78 to −0.07; $P = .02$ and arm 3, −0.5; 95% CI, −0.84 to −0.11; $P = .006$). The EQ-5D-3L scores improved significantly for the telerehabilitation arm 2 but not for the telerehabilitation plus pain management arm 3. [5] (figure 1).

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Source	Mixed-effect Model Repeated Measure Estimates: Effect Size	Coefficient (95% CI)	*P* Value
AM-PAC-CAT basic mobility score[a]	0.23	1.30 (0.08 to 2.35)	.03
	0.09	0.48 (-0.67 to 1.63)	.41
EQ-5D-3L Index[a]	0.23	0.04 (0.004 to 0.071)	.01
	0.16	0.16 (-0.01 to 0.06)	.08
Total pain interference[b]	-0.20	-0.43 (-0.78 to -0.09)	.01
	-0.21	-0.44 (-0.79 to -0.10)	.01
Average pain[b]	-0.20	-0.42 (-0.78 to -0.07)	.02
	-0.24	-0.52 (-0.84 to -0.11)	.01

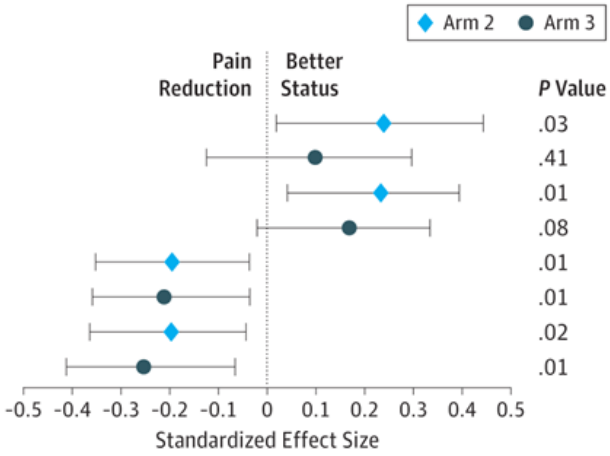

Fig. 1 – Forest Plot with Standardized Effect Sizes, Estimated Coefficients, 95% CIs, and *P* Values from Mixed-Effects Models [3]

Telemedicine systems that people use today emerged from two separate sources: the space program's technology development and independent initiatives from a select group of medical professionals who utilized existing commercial tools. National Aeronautics and Space Administration (NASA) conducted telemetry research and development (R&D) in their manned space-flight program as the first attempt to solve time and distance problems. NASA scientists together with engineers and contractors proved that space physiologic monitoring by earth-based physicians was possible through the development of advanced biomedical telemetry and telecommunications systems [3]. The initial concern of NASA scientists focused on the impact that zero gravity had on human physiology. The physiological monitoring of astronauts in space became a standard practice through the continuous measurement of vital signs which included heart rate, blood pressure, respiration rate and temperature. Extended flight times led to the creation of medical support systems which included diagnostic and therapeutic tools for in-flight emergency situations [10].

The transmission of telemedicine is the concurrent transfer of information about medicine using any form of electronic equipment. Telemedicine made great steps when the covid-19 pandemic started since the infection risk was on the rise, telemedicine became a means of care delivery that was convenient and accessible to all. Quality of care in relation to providing information, whether among health providers or for consultation, is increased and so is the provision of care, telemedicine increases the amount of post-operative care and proper follow-up and enables the provision of control quality of screening programs. Not having follow up may result in overlooking too many things which may cause mortality to rise, or even worsen the progression of a disease. Telemedicine improves accessibility, efficiency, and the overall patient experience. However, there is another side of this coin. The doctor-patient relationship is depersonalized with telemedicine leading to an erosion of the human connection. Doubts always emerge regarding the quality of health information being provided and whether the entire procedure can be carried out adequately over a video consultation [8].

More research is required in order to discern journalism's best uses and implications regarding quality improvement and patient safety and cost-effectiveness in alternative payment systems such as google pay, PayPal, and phone pay.

One of telemedicine's major advantages is its capacity to overcome barriers of distance and time in reaching medically underserved populations.

Therefore, this strong suit would allow telemedicine to grow in multiple pediatric settings [4].

Parents and patients expressed their preferences for pediatric subspecialty telemedicine in this qualitative, hypothesis-generating study. Responding to and understanding patient and caregiver perceptions and preferences is crucial to ensure that telemedicine truly innovates care delivery rather than simply replicating older models of care [7].

The extent of telerehabilitation's influence on healthcare hinges on patients' willingness to use it. According to our study, chronic pain patients appreciated the benefits of telerehabilitation but were reluctant to use it as a standalone treatment. Therefore, any future initiatives should carry on with some aspects of traditional care and work on mindsets as well, either by providing information to bolster patients' confidence in telerehabilitation or by incorporating ways to overcome the expressed concerns into the future designs of these services. More quantitative studies should be undertaken to assess patients' intentions on using telerehabilitation [6].

Conclusion:

1. Telemedicine projects usually succeed when the technology chosen emphasizes system design based on ease of use, affordability, and accessibility to all. These three components orient the development of healthcare systems to provide efficacy in system usage by patients and unrestricted care participation at all stages. The extensive system of technology evaluation allows the patient-care connection to be much better while yielding better health results.

2. The program relies on evidence-based treatment protocols, which must be mutually developed with their implementation for purposes of orientation and trustworthy service delivery. Research in telerehabilitation demonstrates that having a standardized therapy guideline based on best scientific evidence guarantees patients receive the best possible medical care. Such commitment to evidence-based practice becomes vital for forming trust among patients and medical providers.

3. To have these innovative programs take off and become popular, it is essential that they gain public acceptance and recognition of their monetary benefits. Patients must be taught about how these programs maintain affordability and better provide access to health care, as opposed to regular treatment methods. Greater promotion is required to enable patients to recognize how telerehabilitation can alleviate transportation hurdles and therefore cause more patients to opt for this contemporary approach.

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