

TELEREHABILITATION AS AN OPPORTUNITY IN PHYSIOTHERAPY: PROPOSAL OF A DIAGNOSTIC-THERAPEUTIC CARE PATHWAY (DTCP) INCLUDING TELEREHABILITATION FOR THE MANAGEMENT OF THE PATIENT WITH LOW BACK PAIN

Collebrusco Luca¹, Tesauri Daniele²

¹ Rehabilitation Unit, National Health Service of Umbria, Perugia, Italy

² Post graduation Health Professions of Rehabilitation Sciences, Perugia, Italy

KEYWORDS: Telerheabilitation, E-health, low back pain, quality of life, assesment

ABSTRACT

Telerehabilitation (TR) represents a new opportunity for physiotherapists to provide acceptable and high quality healthcare to their service users. The emerging evidence in the literature suggests the opportunity to integrate TR into the physiotherapy professional practice, even beyond the COVID-19 emergency, to ensure continuity of care up to the patient's home and increase access to rehabilitation. One of the areas of application of TR is the management of non-specific low back pain (NLBP). NLBP has a high prevalence rate in the global population and it represents approximately 90% of low back pain cases. It is associated with the risk of chronicization, if not adequately managed, and extremely high costs associated with the treatment. Objective: to develop a proposal for a diagnostic-therapeutic care path (DTCP) on the use of TR in the management of patients with low back pain, taking into consideration the Italian legislation and the best scientific evidence available in the literature. Materials and methods: the bibliographical research in the literature was carried out on the electronic databases MEDLINE, PEDro, Embase, Trip database and Google Scholar was used to access the full-text of some articles. Discussion: the proposed DTCP for the management of the patient with low back pain takes into account the strengths and limitations of TR described in the literature and may represent a national reference model for the application of TR in patients with NLBP who access the outpatient territorial rehabilitation service. However, this proposal needs to be adapted to the specific socio-legislative regional context. The integration of TR to traditional clini

INTRODUCTION

Telerehabilitation (TR) is a peculiar method of rehabilitation practice that refers to the use of information and communication technologies to provide services at a distance intended to enable, restore or otherwise improve the physical and mental functioning of people of all ages, with disabilities or disorders, congenital or acquired, transitory or permanent, or at risk of developing them¹. One possible area of application of TR is the management of patients with non-specific low back pain (NLBP). NLBP is generally localised between the margins of the lower ribs and the gluteal folds, with a high prevalence rate in the population with an associated risk of chronicization if not adequately managed, and extremely high treatment costs¹. Conventionally, the clinical management of NLBP is based on face-to-face interactions between the healthcare provider and the patient. However, this approach is expensive and not accessible for a large number of patients, particularly those living in remote locations. As the use of technology continues to advance, TR has emerged as a potential alternative for the management of patients. To make digital technologies lead to improved quality and sustainability of care, they must be introduced as part of a diag-

nostic-therapeutic care model^a. Therefore, this work developed a proposal for a diagnostic and therapeutic care pathway (DTCP) that includes TR in the management of patients with low back pain. The DTCP is the tool aimed at implementing the guidelines or the best scientific evidence in the literature and results from the integration of two components:

- The recommendations of guidelines and/or good clinical practice;
- Local contextual elements that may affect their application.

Purpose And Area Of Application Of The Dtcp

The proposed DTCP aims to achieve a gradual transition from a specialised management of NLBP to a process-based management of it, including TR; it also aims to reduce the variability of behaviour, maintaining the most appropriate and virtuous ones, by defining:

- the best sequence of actions,
- the optimal timing of interventions,
- the re-examination of the experience gained by healthcare professionals².

The following DTCP applies to patients with NLBP

nostic-therapeutic care model^a. Therefore, this work developed a proposal for a diagnostic and therapeutic care pathway (DTCP) that includes TR in the management of patients with low back pain. The DTCP is the tool aimed at implementing the guidelines or the best scientific evidence in the literature and results from the integration of two components:

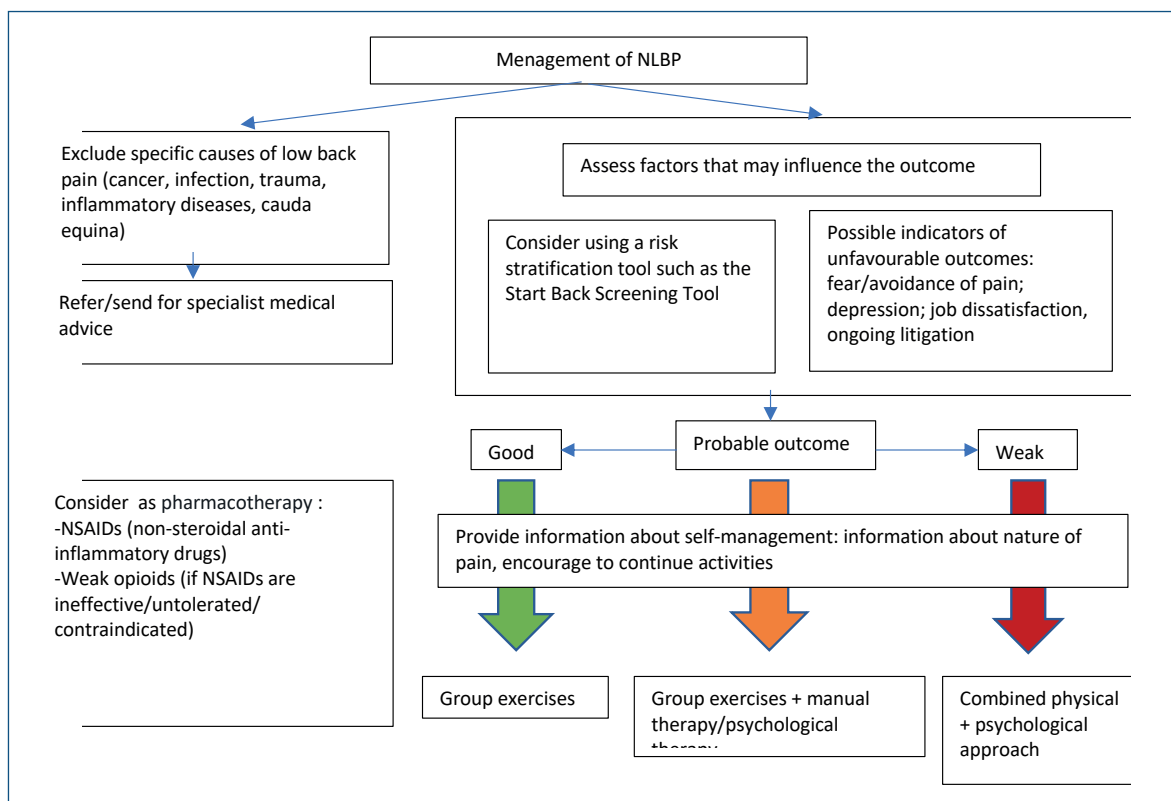


Fig. 1 - Flow chart on the management pathway for the patient with NLBP according to NICE guidelines².

who come, with a referral from the general practitioner (GP), to the outpatient territorial rehabilitation service and who are considered suitable for the activation of the TR service, after an assessment by a multidisciplinary team.

Epidemiology

NLBP is a very frequent osteoarticular disorder in the world population: it has a lifetime prevalence of approximately 80%². NLBP represents approximately 90% of all cases of low back pain and affects men and women equally. It often occurs mostly between the ages of 30 and 50 and involves very high individual and social costs in terms of diagnostic investigations and treatment, it reduces productivity and the ability to carry out daily activities. For people under 45 years of age, NLBP is the most common cause of disability^{1,2}. With this in mind, it is clear that NLBP may be one of the most frequent causes of direct access to the general practitioner (GP), since the latter is almost always the first health care provider to begin the care pathway of a patient with low back pain².

Prerequisites For Enabling Telerehabilitation Services

Healthcare organizations can provide TR interventions, as part of the services paid for by the National Health Service, only if they are accredited for those care activities^c. TR services are designed in accordance with the general principles and methodologies of telemedicine^a. The TR interventions must be planned and delivered in the appropriate ways and times, according to scientific evidence, guidelines and good clinical and care practices, based on the assessment of needs and preferences of the patient and socio-envi-

ronmental needs detected; this also in order to allow the verification of the appropriateness and proper use of resources³. In Figure 1 is schematized the path of management of NLBP according to NICE guidelines².

Conditions related to telecommunication infrastructures

Connectivity at the patient's home

In order to organise the best service for each person taking into account connectivity, it is sufficient to know:

- if there is a WiFi or cable connection at home,
- how far away from the router the person usually connects
- what type of digital devices are available and connectable to the network
- what is the level of mobile connectivity within the home

⁴NICE guidelines, 2016. *Low back pain and sciatica in over 16s: assessment and management*

Connectivity of the location from where the healthcare professionals operate.

Within healthcare facilities, it is recommended to perform connection speed tests and to verify the actual ability of the local network to support data traffic against the average volume of simultaneous requests⁵.

Conditions related to the security of personal data and digital devices present in the user's home

For the patient's safety, healthcare personnel working in telemedicine are required to comply with the rules on the proper handling of patients' personal data, as well as to avoid behaviour that may facilitate possible

ITEMS		Disagree (0)	Agree (1)
My back pain has spread down my leg(s) at some time in the last 2 weeks		<input type="checkbox"/>	<input type="checkbox"/>
I have had pain in the shoulder or neck at some time in the last 2 weeks		<input type="checkbox"/>	<input type="checkbox"/>
I have only walked short distances because of my back pain		<input type="checkbox"/>	<input type="checkbox"/>
In the last 2 weeks, I have dressed more slowly than usual because of back pain		<input type="checkbox"/>	<input type="checkbox"/>
It's not really safe for a person with a condition like mine to be physically active		<input type="checkbox"/>	<input type="checkbox"/>
Worrying thoughts have been going through my mind a lot of the time		<input type="checkbox"/>	<input type="checkbox"/>
I feel that my back pain is terrible and it's never going to get any better		<input type="checkbox"/>	<input type="checkbox"/>
In general I have not enjoyed all the things I used to enjoy		<input type="checkbox"/>	<input type="checkbox"/>
Overall, how bothersome has your back pain been in the last 2 weeks?			
Not at all (0) <input type="checkbox"/>	Slightly (0) <input type="checkbox"/>	Moderately (0) <input type="checkbox"/>	Very much (1) <input type="checkbox"/>
			Extremely (1) <input type="checkbox"/>

Tab. 1 - Keele Start back screening tool questionnaire

cyber attacks. In this respect, the “Guidance Document of the National Study Group on Cybersecurity in Health Services”⁶ has been published by the Istituto Superiore di Sanità. With regard to the processing of health data, it is necessary that the TR systems are adherent to the General Data Protection Regulation, also known as General Data Protection Regulation (GDPR), approved with “EU Regulation 2016/679” of the European Parliament and Council of 27 April 2016⁷ and adapted to national legislation with the issuance of Legislative Decree 10 August 2018, n.101⁸. In addition, it is necessary that the medical devices used are certified according to the new “Medical Device Regulation (EU) 2017/745 (MDR)”⁹.

Conditions relating to the ability of the person at home to collaborate with healthcare professionals

In order for a telemedicine service to function properly, both healthcare professionals and patients need to be trained in its use. To this end, a periodic training plan should be put in place to ensure that the skills of staff involved in the management and use of telemedicine services are maintained over time. Patients should be trained through various forms of tutorials. In addition, it is advisable to warn the person for whom the service is intended that data traffic, when telemedicine is activated at home, will necessarily be higher than usual⁵.

Strengths And Limitations Of Telerehabilitation

The introduction of TR services can offer several advantages for the physiotherapist, the patient and society:

- it provides continuity of care up to the patient’s home;
- it removes barriers for the patient such as travel time, parking, and waiting rooms;
- it better adapts the frequency and intensity of treatment to the needs and preferences of the patient, his or her family and other caregivers and it helps increase adherence to the cure;
- it alleviates the overall burden of patients with

NLBP, and/o reduces the costs of the health care service;

- it facilitates surveillance activities, health education, and the application or adoption of sound self-management practices;
- it facilitates a multidisciplinary approach in rehabilitation, allowing, for example, monitoring of the patient with NLBP in collaboration with a physician or psychologist³;

However, some limitations should be kept in mind:

- lack of a specific TR management option for the patient with NLBP⁴
- not all physiotherapists have the adequate competences in performing remote services
- proliferation of different digital service providers
- possible inadequacy of the Internet connection
- both the physiotherapist and the patient must have access to the necessary technology and be familiar with it¹⁰.

Verification Of The Possibility Of Activating The Telerehabilitation Service In The Proposed Dtcp

Based on the preliminary conditions necessary for the activation of the TR services described above, in the proposed DTCP the inclusion and exclusion criteria of the patient with low back pain were identified. The patient who enters the territorial outpatient rehabilitation service with a referral from the GP, is evaluated, in presence, by the team composed of a physiatrist, a physiotherapist and a psychologist^c. Before activating the TR service it is necessary:

- Exclude red flags requiring urgent medical intervention: malignancy, inflammatory disorders, fractures, infections and cauda equine syndrome¹¹.
- Exclude specific low back pain conditions, where pain and symptoms can be directly attributed to a pathology associated with the myo-osteo-articular system¹¹.
- Ensure that the patient is able to understand requests, read and transmit relevant data, use technological devices and has an adequate Internet connection⁵.

Once a patient has been accurately assessed and diagnosed with NLBP, he or she is stratified according to his/her risk of developing chronic-persistent pain, using the Keele Start back screening tool⁵. This questionnaire is a prognostic indicator validated in the literature that can be easily integrated into TR^{5,6}.

Once the results of the questionnaire have been obtained, it is possible to identify 3 subgroups of patients according to their risk of chronicization:

- 0-3 low risk
- >3 medium risk
- ≥ 4 in items 5 to 9, high risk

On the basis of this classification, the health care team should:

- define the objectives that can be pursued through the individual rehabilitation project (IRP);
- identify the most suitable type of treatment (synchronous, asynchronous or mixed);
- define the time required to achieve the set objectives (frequency and duration of the sessions and duration of the project);
- foresee a verification phase in TR of functional and care outcomes, also evaluated from the patient's perspective.
- prepare a risk assessment plan³.

Pathway Flow Chart

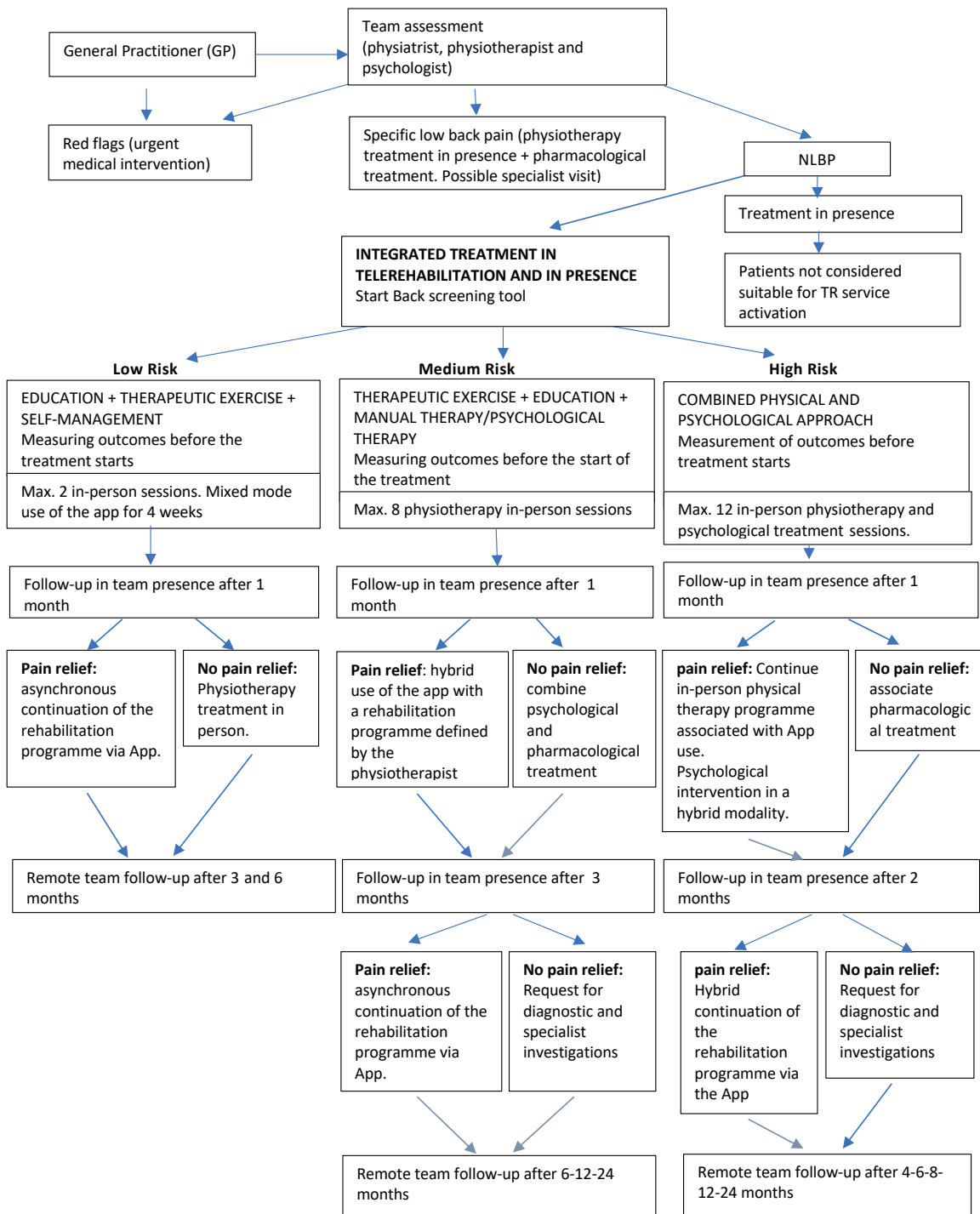


Fig. 2 - Flow chart diagnostic and therapeutic care pathway (DTCP) in the patient with NLBP.

Physiotherapy Digital Health Platform

A digital health platform is used in the DTCP which allows the physiotherapist to:

- Prescribe exercise programs, present in the platform (or upload your own).
- Provide educational material via PDF or educational videos

It also allows professionals of the team to safely perform synchronous teleconsultation.

Patients access the service by downloading a free app on their smartphone/tablet (via App Store or Google play) or by using the app directly from their computer (via Google Chrome or Firefox). Internet connection is required. The patient accesses the App via a link, sent by the physiotherapist; patients are able to view the rehabilitation programme created by the physiotherapist and do the exercises via pre-recorded videos. The system allows patients to print out the exercise programme, set exercise reminders via alerts or email and send messages to team members. The physiotherapist can modify the rehabilitation programme for the patients and view reports on the completion of the exercises performed by the patient. Furthermore, there is the possibility to administer various outcome assessment tools to monitor the patient's results over time.

Platform Security

The platform complies with the legal framework for the processing of personal data (GDPR) for the transmission and storage of electronic medical information. Video and audio are encrypted. Certified engineering.

Synchronous Teleconsultation Activation Process

The process of activating synchronous teleconsultation by video call is managed by the district coordinator, who must be able to consult the list of all online users and all healthcare providers.

The person receiving the service should always be informed that the reference operator with whom he/she is making the video call may not always be available, but that there will always be another operator who will answer and share the information with his/her colleagues. The teleconsultation activation process is carried out through the following procedures:

1. The patient downloads the App on the smartphone/tablet from the App Store or Google Play or opens the webpage via computer with Google Chrome or Firefox.
2. The patient will receive a pass code to enter, along with the year of birth, to access the App.
3. Once the patient is connected to the App, a video call begins, in which the coordinator identifies the patient and informs the patient of the date and time of the interview with the referring healthcare provider.

In order to identify the patient, at the beginning of the video call, the patient is asked to show him/herself and at the same time show a valid identity document to the camera, noting the details of the document itself. It is verified that the patient is in a quiet, spacious and well-lit environment. The appropriate camera angle is also identified. To improve audio quality, it is recommended to use a headset with a microphone. However, if you do not have a headset it is important to check that the computer microphone is working.

4. When the time for the appointment with the

physiotherapist arrives, patients simply log on to their account and wait for the call. In the meantime, informed consent and the consent to process health data is requested. The consent is repeated for each service and the risks involved are specifically explained, such as the risks associated with the lack of physical contact and direct observation in the presence of the physiotherapist¹². The patient must be able to withdraw his or her consent to the use of TR services at any time. In this case the multidisciplinary team must re-evaluate the patient and redefine the IRP, taking into account the new needs and preferences expressed by the patient^c. The patient can't call the physiotherapist, while the latter may invite, with the patient's consent, other users (including other health professionals).

5. After reading and giving consent, the patient can communicate with the physiotherapist via encrypted audio and video.

Patients with problems in connecting to the Internet and who are unable to use technological devices are referred to face-to-face interventions.

Treatments Performed

The physiotherapist, as a health professional, must scrupulously follow the health guidelines and protocols as defined by the Gelli-Bianco law¹³. The current practical guidelines for the management of low back pain on the website of the Istituto Superiore di Sanità, which must be followed in terms of professional responsibility, recommend: patient education, self-management, cognitive-behavioural therapy, exercise prescription and pharmacological therapy¹⁴. All these treatment components could be provided through TR⁴ acting as a supplement to the usual physiotherapy, but not as a substitute intervention^{4,7}.

Remote physiotherapy intervention

The physiotherapy intervention in TR in NLBP is carried out using the App through the hybrid modality that includes both synchronous counselling (provided in real time and therefore in on-line presence) and asynchronous counselling (provided in deferred time and off-line). The synchronous counselling takes place through video call and is used to educate and motivate the patient, to give feedback on the correct execution of the exercises and to make any changes to the rehabilitation programme; the asynchronous treatment takes place through the sharing by the physiotherapist of the rehabilitation programme that the patient can consult with pre-recorded videos of the exercises present in the digital platform and through the sending of educational material. Basically, remote physiotherapy intervention is based on 3 components:

- Therapeutic education:
 - provide reassurance about the benign nature of NLBP, explain that a severe disease is unlikely to be present.
 - explain that medical imaging is not required and will not change the management
 - avoid using terms such as injury, degeneration, or wear and tear
 - encourage the patient to remain active and avoid bed rest, continue daily activities, stay at work, or return as soon as possible
 - encourage the patient to take responsibility for his/her own management on an ongoing basis

Indicator	Numerator	Denominator	Expected standard	Source
Patients who have activated the TR service with the App	Number of patients who managed to have access to the app	Number of patients contacted	90%	Digital patient data management platform

Tab. 2 - DTCP flow indicator.

- avoid language that promotes fear of pain and catastrophic thinking (e.g. “let pain be your guide”, “stop if you feel pain” and “you must be careful”)
- Therapeutic exercise: exercises based on the principle of “core stability” and progressive aerobic exercise.
- Health coaching: includes motivational phone calls to support patients to gradually increase their leisure time and occasional physical activity^{4,7}.

Psychological intervention

The psychological intervention is based on the principles of cognitive-behavioural therapy. In particular, the patient’s recurrent thoughts, fixed patterns of reasoning and interpretation of reality are identified; through gradual exposure of the patient to feared situations, an attempt is made to make him/her learn new ways of responding to states of discomfort.

Physiatric intervention

Definition of the individual rehabilitation project (IRP)¹⁵ and prescription of any pharmacological therapy.

Monitoring And Control

This DTCP is controlled/monitored by the district coordinator through the following flow indicator (Table 2):

Data management

All data from the app are synchronised, stored and analysed via a digital platform managed by a team of engineers and statisticians. This digital platform provides the collection of patient data such as:

- Pain and ability levels
- Specific treatment outcomes from the exercise programme
- Adherence to prescribed exercises
- Responses to patient recorder outcome measures (PROMs).

The instruments used to measure the various patient outcomes are:

- Oswestry Disability Index (ODI) for physical function^{8,9}
- Visual analogue scale (VAS) for pain^{8,9}
- PROMIS-10 module for quality of life¹⁰
- Fear avoidance belief questionnaire (FABQ) to measure beliefs about fear and movement avoidance¹¹
- Telehealth usability questionnaire (TUQ) to measure patient satisfaction and their perceptions of the treatment provided¹².

The data of the App are then integrated with those of the computerised medical record and interpreted by the coordinator of the territorial rehabilitation service in order to check the achievement of the planned objectives and possible deviations.

Economic Evaluation

The economic evaluation of the following DTCP is carried out through a cost-effectiveness analysis^{a,13}.

This analysis is carried out by comparing the costs of the treatment programme (both in TR and in presence) with the age-weighted life years gained (quality-adjusted life years, QALYs).

For the evaluation of the costs it is necessary to take into account the material needed for remote rehabilitation:

- Digital physiotherapy platform: x monthly per physiotherapist
- Digital platform for data storage and analysis: x monthly
- Connectivity costs related to the use of the platform (variable).

For the assessment of QALY, the Owesstry disability index scale is used as a tool to measure quality of life.

Remuneration Of Telerehabilitation Services

The State-Regions Agreement of 10th September 2020 concerning the “Provision of outpatient specialist services at a distance-telemedicine services”^p establishes that for all the healthcare services provided at a distance, the national/regional regulatory framework that regulates access to the various Essential Levels of Care is applied. In particular, TR services provided in an outpatient setting are remunerated at the rate applied to the same services provided in a “traditional” manner³.

CONCLUSION

The proposed DTCP for the management of the patient with NLBP takes into account the strengths and limitations of TR described in the scientific literature^{c,j,3} and can represent a reference model at national level for the application of TR in patients with NLBP accessing the outpatient territorial rehabilitation service. However, it is necessary that this DTCP proposal is adapted to the specific regional socio-legislative context, taking into consideration the various technological and economic availabilities and the skills of the healthcare professionals, with the creation of an interdisciplinary group of professionals involving also the governing bodies. Finally, once adapted to the local context, the DTCP needs to be disseminated within the specific health facility and in the general population, implemented, monitored and controlled over time, assessing both its effects on patient outcome and from an economic point of view. The integration of TR with traditional clinical practice could significantly reduce the costs of care pathways (e.g. unnecessary imaging or invasive treatments) and also avoid the transition to chronicization by promoting the self-management of patients with NLBP^{6,13,11}.

Acknowledgements

The authors would like to thank Tardioli Valentina for the translation of this paper.

REFERENCES

1. Ajay Premkumar et. al. (2018) "Red Flags for Low Back Pain Are Not Always Really Red: A Prospective Evaluation of the Clinical Utility of Commonly Used Screening Questions for Low Back Pain". *The Journal of bone and joint surgery*
2. Peter O'Sullivan (2005) "Diagnosis and classification of chronic low back pain disorders: maladaptive movement and motor control impairments as underlying mechanism". *Manual therapy*
3. Michelle Cottrell et. al (2017) "Real-time telerehabilitation for the treatment of musculoskeletal conditions is effective and comparable to standard practice: a systematic review and meta-analysis". *Clinical rehabilitation*.
4. Amabile Borges Dario et. al. (2017) "Effectiveness of telehealth-based interventions in the management of non-specific low back pain: a systematic review with meta-analysis". *The spine journal: official journal of the North American Spine Society*
5. Jonathan C. Hill (2008) "A primary care back pain screening tool: Identifying patient subgroups for initial treatment". *Arthritis Care & Research*
6. Tjarco Koppenaal et. al. (2020) "Effectiveness and cost-effectiveness of stratified blended physiotherapy in patients with non-specific low back pain: Study protocol of a cluster randomized controlled trial". *BMC Musculoskeletal Disorders*
7. Shizheng Du et. al. (2019) "The efficacy of e-health in the self-management of chronic low back pain: A meta-analysis". *International Journal of Nursing Studies*
8. Fuensanta Palacin-Marín et. al. (2013) "Agreement between telerehabilitation and face-to-face clinical outcome assessments for low back pain in primary care". *Spine*
9. Alessandro Chiarotto et. al. (2018) "Core outcome measurement instruments for clinical trials in nonspecific low back pain". *Pain*
10. Sang Pak et. al. (2021) "Use of the PROMIS-10 global health in patients with chronic low back pain in outpatient physical therapy: a retrospective cohort study". *Journal of patient-reported outcome*
11. Seth Peterson et. al (2018) "Use of a modified treatment-based classification system for subgrouping patients with low back pain: Agreement between telerehabilitation and face-to-face assessments". *Physiotherapy theory and practice*.
12. Bambang Permanto et. al. (2016) "Development of the Telehealth Usability Questionnaire (TUQ)". *International journal of telerehabilitation*.
13. Francis Fatoye et. al. (2020) "The Clinical and Cost-Effectiveness of Telerehabilitation for People with Nonspecific Chronic Low Back Pain: Randomized Controlled Trial". *JMIR mHealth and uHealth*

NOTES

¹ Ministry of Health, 2014: *Telemedicina – Linee di indirizzo nazionali*

² Stefano Govannoni, Silvia Minozzi, Stefano Negrini with the participation of the following Scientific Societies: SIMG, SIMFER, SIMLII, SIN, SINCH, SIOT, SIR, AIFI, 2006: *Percorsi diagnostico terapeutici per l'assistenza ai pazienti con mal di schiena*.

³ Ministry of Health, 2021: *Indicazioni per l'erogazione di prestazioni e servizi di TR da parte delle professioni sanitarie, dei medici e degli psicologi*.

⁴ NICE guidelines, 2016. *Low back pain and sciatica in over 16s: assessment and management*

Assessments of the patient's suitability to use TR services are carried out during multidisciplinary assessments in presence, aimed at defining or reviewing the Individual Rehabilitation Project (IRP). On this occasion, the multidisciplinary team, referring to the International Classification of Functioning, Disability and Health (ICF), will check the presence of enabling factors and/or barriers to the patient's use of TR services, taking into consideration the psychoeducation and training of the patient and caregiver in relation to the activities to be performed at a distance. Where necessary and possible, the multidisciplinary team identifies strategies and implements solutions to remove these barriers⁵.

⁵ Istituto Superiore di Sanità, 2020. *Indicazioni ad interim per servizi assistenziali in telemedicina durante l'emergenza sanitaria COVID-19*.

⁶ Istituto Superiore di Sanità, 2019. *Buone pratiche per la sicurezza informatica nei servizi sanitari*.

⁷ Official Journal of the European Union, 27th April 2016. *Regulation (EU) 2016/679 of the European Parliament and of the Council on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)*.

⁸ Official Gazette of the Italian Republic, 10th august 2018. *Disposizioni per l'adeguamento della normativa nazionale alle disposizioni del regolamento (UE) 2016/679 del Parlamento europeo e del Consiglio*.

⁹ Official Journal of the European Union, 5th April 2017. *Regulation (EU) 2017/745 of the European Parliament and of the Council on medical devices, amending Directive 2001/83/EC, regulation (EC) n. 178/2002 and regulation (EC) n. 1223/2009 and repealing Council Directives 90/385/EEC and 93/42/EEC*.

¹⁰ Report of the WCPT/INPTRA DIGITAL PHYSICAL THERAPY PRACTICE TASK FORCE, 2020.

¹¹ International Federation of Orthopaedic Manipulative Physical Therapists (IFOMPT), 2020: *opinion on the effectiveness of physiotherapy management of neuro-musculo-skeletal disorders by telerehabilitation*

¹² AIFI-Commissioni di Albo dei Fisioterapisti, 2020. *Nota sulla Rimodulazione degli Interventi fisioterapici nell'emergenza COVID-19*.

¹³ Official Gazette of the Italian Republic, 8th March 2017. *Disposizioni in materia di sicurezza delle cure e della persona assistita, nonché in materia di responsabilità professionale degli esercenti le professioni sanitarie*.

¹⁴ Department of Veterans Affairs; Department of Defense, 2017. *VA/DOD clinical practice guideline for diagnosis and treatment of low back pain*

¹⁵ Permanent Conference for relations between the State, the Regions and the Autonomous Provinces of Trento and Bolzano, 30th May 1998: *Linee guida del Ministero della Sanità per le attività di riabilitazione*

