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Characterization of physiotherapists practice and perceptions regarding patient education of patients with chronic low back pain

A comparison of novice and non-novice physiotherapists

Dissertação de Mestrado em Fisioterapia

Relatório de Projecto de Investigação

Orientador

Professora Doutora Carmen Caeiro

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Relatório do Projecto de Investigação apresentado para cumprimento dos requisitos necessários à obtenção do grau de Mestre em Fisioterapia, área de especialização em Fisioterapia Músculo- Esqueléticas realizada sob a orientação científica da Professora Doutora Carmen Caeiro e co-orientação da Professora Doutora Roma Forbes.

Declaro que este Relatório de Projecto de Investigação é o resultado da minha investigação pessoal e independente. O ser conteúdo é original e todas as fontes consultadas estão devidamente mencionadas no texto, nas notas e na bibliografia.

O candidato,

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Tiago de Carvalho Balluchi

Setúbal, 6 de Setembro de 2021

Declaro que este Relatório de Projecto de Investigação se encontra em condições de ser apresentada a provas públicas.

A Orientadora,

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Professora Doutora Carmen Caeiro

Setúbal, 6 de Setembro de 2021

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Resumo

Caracterização da prática e percepção dos fisioterapeutas acerca da educação enquanto modalidade terapêutica no tratamento de indivíduos com dor lombar crónica

Uma comparação entre fisioterapeutas recém-formados e experientes

Tiago Balluchi, Roma Forbes e Carmen Caeiro

Enquadramento: A dor lombar crónica é das causas principais de anos vividos com incapacidade. As guidelines recomendam a utilização de um modelo biopsicossocial para a avaliação e intervenção nesta condição, com recurso a abordagens activas, onde a educação sobre a dor assume especial relevância. A literatura existente tem demonstrado que a prática clíncia neste âmbito é heterogénea, não só entre países mas entre os profissionais de cada país, o que pode comprometer os resultados clínicos obtidos. Adicionalmente, pouco é conhecido sobre a diferença, na implementação desta modalidade terapêutica, entre fisioterapeutas recém-formados e com mais anos de experiência.

Objetivo: Este estudo teve como objectivo investigar a percepção e uso da educação, enquanto modalidade de terapêutica no tratamento de utentes com dor lombar crónica, pelos fisioterapeutas em Portugal. Teve também o objectivo de investigar a influência da experiência dos fisioterapeutas, procurando diferenças entre a prática auto-reportada de educação e os anos de experiência no tratamento de indivíduos com dor lombar crónica.

Metodologia: Realizou-se um estudo transversal, com recurso a um questionário online onde os fisioterapeutas portugueses auto-reportaram a sua prática clínica no que diz respeito à educação de utentes com dor lombar crónica. Numa segunda fase, os dados recolhidos foram divididos em 2 grupos: recém-formados (5 ou menos de 5 anos de experiência) e experientes (6 ou mais anos de experiência).

Resultados: 112 fisioterapeutas reportaram formas distintas de implementar a educação no contexto da dor lombar crónica, a maioria não seguindo consistentemente as guidelines. Verificou-se uma diferença entre a prática de profissionais recém formados e com mais anos de experiência, onde os primeiros reportaram menor uso de abordagens educativas centradas no utente. Os fisioterapeutas com menos experiência identificaram mais barreiras à educação, especialmente barreiras relacionadas com características dos utentes.

Conclusões: Este estudo constituíu um contributo para a investigação sobre a percepção e caracterização da educação, enquanto modalidade terapêutica utilizada pelos fisioterapeutas portugueses no tratamento de indivíduos com dor lombar crónica. Os resultados apontam para uma divergência entre a prática clínica em Portugal e as recomendações internacionais para abordagem da dor lombar crónica e chamam a atenção para diferenças importantes na atuação dos fisioterapeutas em função do número de anos de experiência profissional.

Palavras-chave: Dor Lombar Crónica; Educação; Fisioterapeutas Recém-formados e Experientes

Abstract

Characterization of physiotherapists practice and perceptions regarding patient education of patients with chronic low back pain

A comparison of novice and non-novice physiotherapists

Tiago Balluchi, Roma Forbes and Carmen Caeiro

Background: Chronic low back pain is one of the leading causes of years lived with disability. Clinical guidelines have recommended the use of a biopsychosocial model to assess and address chronic low back pain, with a focus on active approaches, where patient education plays a role of the utmost importance. The existing literature has indicated heterogeneous approaches to chronic low back pain, not only between countries, but amidst one's country, and this diversity may compromise the clinical outcomes. Additionally, little is known about the implementation of patient education among novice and non-novice physiotherapists.

Objective: This study aimed to investigate the perception and use of patient education, by physiotherapists in Portugal, in the context of chronic low back pain. It also aimed to investigate the influence of physiotherapists` experience on self-reported patient education practice, looking for differences between the self-reported practice of patient education and physiotherapists` years of experience working with individuals with chronic low back pain.

Methods: A transversal study was carried out based on an online questionnaire where Portuguese physiotherapists self-reported their practice regarding patient education in the scope of chronic low back pain. The data were divided in 2 groups: novices (5 or less years of experience) and non-novices (6 or more years of experience).

Results: 112 physiotherapists reported quite distinct ways of managing chronic low back pain, most not consistent with guidelines regarding patient education. There were differences between the practice of novice and non-novice physiotherapists, whith the former reporting less use of patient-centred approaches to education. Novice physiotherapists reported more barriers to patient education, especially those related to patient`s characteristics.

Conclusions: This study contributed to research on the Portuguese physiotherapists` perceptions and characterization of clinical practice in the scope of patient education of patients with chronic low back pain. Results showed a divergency between the participants` clinical practice and the international guidelines for management of chronic low back pain, and highlighted important differences in the physioterapists' approaches, according to their years of experience.

Keywords: Chronic low back pain; Patient education; Novice and Non-Novice Physiotherapists

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Abreviation list

LBP – Low Back Pain

CLBP – Chronic Low Back Pain

NSLBP – Non-Specific Low Back Pain

NSCLBP – Non-Specific Chronic Low Back Pain

1. Introduction

1.1 Definition, aetiology and impact of chronic low back pain

Low back pain [LBP] is defined as pain or discomfort between the costal grid and the inferior gluteal fold. It can be accompanied by referred pain to one or both lower limbs and can present with or without neurological symptoms (Senstad et al., 1997). LBP is frequently classified and treated on the basis of symptom duration: acute back pain is defined as lasting less than 4 weeks, subacute back pain lasts 4 to 12 weeks, and chronic back pain lasts more than 12 weeks (Qaseem et al., 2017).

Chronic low back pain [CLBP] is characterized by a multitude of biophysical, psychological and social factors, which limit function, social participation and personal and professional prosperity (Foster et al., 2018; Hartvigsen et al., 2018). As a result, CLBP is no longer accurately viewed as a purely structural, anatomical or biomedical disorder of the lumbar spine. Despite existing potential important causes for LBP, such as cancer, vertebral fracture, infections and inflammatory diseases, that require urgent and direct management, these are seldom identified (10 to 15%), leaving the majority of cases with a diagnosis of non-specific chronic low back pain [NSCLBP] (Verhagen et al., 2016).

NSCLBP is one of the leading causes of years lived with disability in several countries and across all ages, being such that in 2015, over half a billion people suffered from LBP worldwide (Hurwitz et al., 2018). The Global Burden of Disease Project estimates the worldwide prevalence in a month of LBP in adults is 37% (Riley et al., 2019), being today the leading cause of disability worldwide (Buchbinder et al., 2018). Research from Portugal reveals that the most prevalent rheumatic and musculoskeletal disease amongst the population was LBP, with an average of 26.4% of the Portuguese population affected by it, meaning that it is of major impact for Portugal and the Portuguese health care professionals (Branco et al., 2016; Gouveia et al., 2016). Furthermore, as LBP and CLBP have such a high prevalence, their economic impact is transectorial, increasing the costs in health care and social support systems.

1.2 Prognosis and the relevance of psychosocial factors

Several authors have investigated the prognosis of LBP and found it to be favorable, with most cases returning to be free of pain in as little as 4 weeks, and approximately 90% recovering in 6 weeks (Coste et al., 1994; Hancock et al., 2009; Maher et al., 2017). However, literature has also indicated a less optimistic picture (Costa et al., 2012).

One systematic review (Costa et al., 2012) aimed to establish the clinical course of acute and persistent LBP, and concluded that after the initial 6 weeks, recovery tends to slow down, where some individuals maintain low to moderate levels of pain and disability after 1 year. The authors investigated the prognostic factors that may lead to these outcomes, but the reporting of the strength of association was very inconsistent among the studies evaluated, which made it impossible to pool these data.

In 2018 *The Lancet* highlighted the role of psychosocial factors in the prognosis of LBP (Hartvigsen et al., 2018). The authors reported that psychological factors are not exclusively related to health disorders, are not distinct from biological factors, and are not present just in individuals living with persistent pain. That means, not all psychological factors are indicative of a mental health disorder, but some are on their way to becoming one – for example, fear of movement turning into a kinesiophobic disorder, as well as increasing the risk for developing persistent pain. As psychological factors are so relevant in LBP, physiotherapists should be able to assess these factors.

Additionally, physiotherapists seem to have categorized interventions as "physical" or "psychological" with strict definitions, and may have limited themselves with them (Main et al., 2011). It is known that "physical" interventions such as exercise can lead to improvements in pain and disability mediated by changes in "non-physical" parameters like beliefs, distress, fear and self-efficacy (Lee et al., 2016). This leads to the second point, where it has also been reported that physical factors such as posture and movement are influenced by psychological factors such as fear which may increase muscle activation and reduce movement. This may potentially be giving the impression that the psychological factors only appeared after some time, when it may be the other way around (O'Keeffe et al., 2018).

Psychological factors may also be present even without persistent pain, but these have often only been considered when the patient is not responding to "usual treatment".

Buchbinder and colleagues (2018) call to action to realize that psychosocial aspects are present in all types of LBP and these can be measured with validated assessment tools (eg, Start Back Screening Tool, Orebro Musculoskeletal Pain Questionnaire). These authors reported that the health professional in the first line of treatment for patients with LBP should take the lead assessing and implementing interventions regarding psychosocial factors, including general practitioners and physiotherapists (Buchbinder et al., 2018; M O'Keeffe et al., 2018). As seen before, persistence of pain and disability may lead to the maintenance and chronicity of the clinical condition. Thus, some authors have suggested that this might be a consequence of clinicians not feeling prepared to follow the most recent guidelines (Casserley-Feeney et al., 2008; Forbes et al., 2017). One systematic review with 12 studies showed that many physiotherapists reported that they lack the requisite skills and confidence to successfully discuss and address these factors among patients with LBP (Synnott et al., 2015). As a result, physiotherapists may not be equipped with the requisite skills to manage the multiple factors that can impact the pain experience and its subsequent management, leading to chronic pain.

1.3 Guidelines and Physiotherapists' attitudes

The most recent clinical guidelines for the management of CLBP have recommended the use of a biopsychosocial model to assess and address CLBP, with a focus on active treatments such as education, and less focus on passive, pharmacologic or surgical solutions (Foster et al., 2018; O'Sullivan et al., 2017).

The recommendations regarding intervention have emphasized patient education regarding the nature of pain, as well as prognostic information (Foster et al., 2018; Oliveira et al., 2018). Accordingly, education and self-management strategies should be discussed with patients, so that they are encouraged to avoid rest and labor absenteeism, and to maintain daily activities (Foster et al., 2018; O'Sullivan et al., 2017; Oliveira et al., 2018; Stochkendahl et al., 2018). The recommendations for therapeutic interventions have pointed to the use of manual therapy, exercise and education. However, the evidence is inconclusive regarding the quantity, intensity, or optimal means for the use of these modalities (Toward Optimized Practice & Institute of Health Economics, 2017), with the educational component the least explored of the three. Furthermore, there is research indicating that patient education used on its own, even if intensive, may be ineffective (Traeger et al., 2019). There is also conflicting information regarding whether patient

education delivered by physiotherapists in cases of CLBP is consistent with a biopsychosocial approach and research suggests that physiotherapists require specific and additional training in this area (Sanders et al., 2013). Research has also demonstrated that physiotherapists recognize some of the cognitive, psychological and social factors of patients with CLBP but clearly prefer the more physical aspects of it, and sometimes even stigmatize patients with the behaviours suggestive of non-mechanical contributions to CLBP (Synnott et al., 2015).

National accreditation requirements and graduate standards of entry level, doctoral, and advanced practice within the USA (American Physical Therapy Association, 2011), United Kingdom (Chartered Society of Physiotherapists, 2013), Australia and New Zealand (PBA, 2015) and Portugal (Portuguese Physiotherapists Association – APFisio, 2020) include patient education as a broad subject for pre-professional and professional programs and graduates. Education is recommended to address the biopsychosocial factors inherent to CLBP. However, the parameters to educational approaches are not well defined. It is therefore recognised internationally that patient education is an important consideration for the training of physiotherapists. Hence, the importance of better defining patient education for the sake of future research and better treatment outcomes is recognised.

Despite the number and consistency of management recommendations for the assessment and management of CLBP, clinical practice is still far from meeting scientific evidence (Foster et al., 2018). There is significant evidence reporting either unfamiliarity with guidelines, or despite knowing, non-complying with them. Rutten and colleagues (2010) reported 67% adherence to clinical guidelines amongst Dutch physical therapists. A study in 2017 surveying Brazilian physiotherapists reported that full adherence ranged only from 6% to 24% (De Souza et al., 2017). Among first contact practitioners, General Practitioners were also considered in some studies, and these also concluded a gap between the knowledge and actions of first contact practitioners (Slade et al., 2016).

Furthermore, the existing literature has indicated that clinicians may use varying approaches to CLBP. This difference is noticeable between countries and between physiotherapists from the same country. Additionally, due to the diversity of therapeutic approaches, the clinical outcomes of this condition may be compromised (Casserley-Feeney et al., 2008; Gracey et al., 2002). This means that research is needed in order to establish a way of practice that is common amongst physiotherapists, a patient centered

and evidence based practice, in order to achieve the best outcomes. This was a crucial argument that impelled this study, revealing the necessity of physiotherapists to act unanimously according to the guidelines, in order to improve the clinical outcomes obtained with patients with CLBP.

1.4 Evidence towards patient education

This section outlines the most relevant literature on the topic, evidencing the gap in patient education, looking firstly at a global perspective, and then focusing on national practice.

A cross-sectional study in Australia (Keating et al., 2016), investigated the clinical practice of physiotherapists working with individuals with LBP. The aim of the study was to understand if physiotherapists followed clinical guidelines and recommended an X-ray only when justified. In particular, the approach to patient education was explored, and the authors concluded that the majority of physiotherapists acted accordingly to the clinical practice guidelines, not asking for an X-ray and providing advice to stay active. However, 17 to 34% still reported "use of electrotherapy", contrary to clinical guidelines.

Pensri and colleagues (2005) undertook a study in Thailand with the aim of assessing the practice of physiotherapists regarding working with patients with LBP. All physiotherapists working in Thailand were invited to participate, obtaining a response rate of 64.7%. The authors concluded that electrophysical modalities such as heat, ultrasound, and mechanical traction were the most frequently used intervention, as opposed to more developed countries, and recommendations of clinical guidelines (Maher et al., 2017; North American Spine Society, 2020; Oliveira et al., 2018; Qaseem et al., 2017). Although patient education and prevention of further episodes were rated as most meaningful goals by 30% of the participants, when asked what treatments they would prefer to use if they had time, training and manpower, patient education was not in their answers.

A study in Northern Ireland was undertaken to ascertain the clinical practice of physiotherapists while managing patients with LBP (Gracey et al., 2002). During one year, 157 physiotherapists completed two sets of questionnaires, one regarding their professional profile and subsequently one for each patient referred by physicians to the physiotherapy departments in the National Health Service in Northern Ireland, reporting

on their experiences of managing approximately 1062 patients with LBP from 35 physiotherapy clinics around the country. Of these, 70% of patients were reported to have presented with pain of over 6 weeks, and 26% had already received previous physiotherapy treatment. The treatment details showed that Advice and McKenzie were the most used treatment. Despite the physiotherapists questioned reporting the use of patient education with 89% of their patients, about 30% continued to use electrotherapy approaches.

Li and Bombardier (2001) undertook a study in Canada of 274 physiotherapists from Ontario who had frequent practice with patients with LBP, in order to understand their approach. The physiotherapists were asked about their practice relating to 1) physical examination, 2) treatment and recommendations and 3) therapists' beliefs. The authors concluded that there was a trend to use modalities of electrotherapy and physical agents with uncertain effectiveness, and that only 46.3% agreed with current clinical guidelines. The authors also had results where patient education was preferentially used in the treatment of acute cases of LBP, rather than in sub-acute cases of LBP. Considering that the majority (53.7%) did not follow or agree with clinical guidelines, it could be observed that patient education was not practiced according to the recommendations.

As seen here, the guidelines are, primarily, recognized internationally. However, there remains a discrepancy in the use of some interventions, such as the use of patient education and electrotherapy. Additionally, the use of education is considered by many, but few have explicitly described the respective parameters used in practice.

Forbes and colleagues (2017) undertook a cross-sectional study, aiming to identify which educational practices were used across physiotherapy settings, and respective perceptions amongst practicing Australian physiotherapists. The focus of this study was the self-reported practice of physiotherapists, with the aim of understanding the factors influencing patient education in the Australian context. An online questionnaire was created on the platform SurveyMonkey, made of one section of demographic questions, a second section of 5-point Likert scale questions, presented in a matrix, regarding patient education and respective importance, and a last section relating to barriers and associated factors with patient education. The survey also included an option to provide open responses. The questionnaire was sent to 824 physiotherapists recruited from the Australian Physiotherapy Association (APA), from which 305 replied (response rate of 37%). This study shines a light on the aspects of the physiotherapists' practice in

Australia, with interesting results: “despite 68% of respondents identifying pain neurophysiology education as very important or important, less than half of all respondents reported using this patient education content very often or always.” (Forbes et al., 2017). This study was crucial to the area, with sound methodologies, it detailed a less known component of the clinical practice of physiotherapists.

Following, the analysis focuses on the physiotherapy practice in Portugal. Gil and colleagues (2009) performed the first study in Portugal to investigate the effectiveness of physiotherapy care of patients within outpatient settings with NSLBP. This prospective study aimed to characterize the standards of physiotherapy care of patients with NSLBP and the perceived effectiveness of care. A total of 529 individuals were followed since the beginning of treatment for the following 12 months, assessing the results with Roland-Morris Disability Questionnaire, Short 6 item Questionnaire and Medical Outcomes Study Short 36 item. The participants were gathered from 13 public health care and 32 private institutes. Those over 14 years old who started treatment for NSLBP, were potentially included, regardless of the duration of symptoms (acute, subacute or chronic). The study found significant variability in the interventions undertaken by the physiotherapists. Significant improvements were reported between the beginning and the end of treatment and these were maintained throughout the follow-up period. This study indicated that group therapies and physical agents were modalities that predicted worse outcomes, while education or counseling approaches were associated with better outcomes. In 2009 the authors had already indicated the heterogeneous approach of physiotherapists when managing this condition, and called for a deeper analysis of the efficacy and efficiency of available interventions.

Moniz and colleagues (2012) investigated the practice of Portuguese physiotherapists managing patients with CLBP, also in the form of a questionnaire. This study aimed to describe not only the main intervention approaches (manual therapy or exercise for instance), but to describe the specific interventions used (mobilization, manipulation). The results indicated significant heterogeneity regarding the therapeutic modalities and number of consultations for patients with this condition, with the authors noting major diversity, frequency and duration of the treatments used. The educational component was the least explicit, without further detail than “education / information / counseling”. The authors concluded that the interventions most frequently used were therapeutic exercises and physical agents, followed by education / information /

counseling and manual therapy. No further details were given on the domain of education / information / counseling.

Sá and colleagues (2018), who also investigated the self-reported practice of Portuguese physiotherapists working with LBP patients, to our knowledge, were the only ones who explicitly described some educational contents. In this case, the authors categorized them in the following themes: origin of pain (non-specific; from posture; from biomechanical changes; from herniated disk), prognosis of the condition (favourable prognostic; majority of individuals recover in two weeks; most individuals recover in six weeks; pain is benign; prognostic can be unfavourable), recommendation of activity (rest; rest only in SOS; physical activity; decrease of physical activity; return to activities of daily living; movement below the pain threshold), recommendation of medication (medication should be under control; use any kind of medication; use only NSAID). The authors concluded that the interventions most frequently used were manual therapy, therapeutic exercises and education. Electrotherapy was the least frequently used modality, but was used by more than a third of the participants. Regarding education, it was evident that Portuguese physiotherapists seemed not to follow the clinical guidelines, doing both what is recommended and what is not.

There is scientific evidence regarding physiotherapists' clinical practice, even some about the use of education as a therapeutic intervention. But the majority of research is not explicit on the parameters used, namely if it is mostly focused on pain education or management of daily life activities (pain management and return to activity) (Toward Optimized Practice & Institute of Health Economics, 2017). There is also conflicting information regarding whether patient education delivered by physiotherapists in cases of CLBP is consistent with a biopsychosocial approach.

Previous research has reported the usual practices of Portuguese physiotherapists in cases of CLBP (Gil et al., 2009; Moniz, 2012; Sá et al., 2018). The majority claim a practice with a range of activities and factors, combining manual therapy, exercise, heat and/or cold, electrotherapy and education, along with other countries (Keating et al., 2016; Pensri et al., 2005). However, there is a greater number of studies that is not explicit in the parameters of each intervention, being educational practice the least described (Gracey et al., 2002; Li & Bombardier, 2001).

As previously described, CLBP has a strong impact globally, and international guidelines recommend patient education be used to address the biopsychosocial factors

inherent to CLBP. Additionally, it is important to describe the reality of physiotherapists, since understanding what physiotherapists do is helpful to inform training or education.

Overall, there have been very limited research relating to the self-reported practice of physiotherapists in the use of patient education for patients with CLBP. Furthermore, there has been no research to date that has characterised practice or perceptions of physiotherapists in Portugal.

1.5 Novices VS Non-Novices: Role of experience in Patient Education

Previous reseach has shown a difference between novice and experienced physiotherapists regarding their reasoning and attitudes in clinical practice. These aspects are central to patient education (Forbes et al., 2017; Horler et al., 2020; Jensen et al., 1990, 2000; Resnik & Jensen, 2003).

More experienced physiotherapists tend to use a more patient-centered approach, wich allows them to better listen to the patient. This approach establishes a stronger therapeutic relationship, that invites patients to talk with less restrictions, and leads the physiotherapists to better understand the patients' reality and their perspective about their health condition. This seems to allow the physiotherapists to create a treatment plan better tailored to the patients' needs (Horler et al., 2020; Jensen et al., 1990, 2000; Resnik & Jensen, 2003).

On the other hand, novice physiotherapists seem to rely more on their technical skills rather than on their social ones. This contrasts with the more experienced physiotherapists, who open themselves to patients, giving information more valuable to the patients, with more encouragement (Jensen et al., 1992; Wainwright et al., 2011).

This study aimed to ilustrate the difference between novice and non-novice physiotherapists, since the less experienced seem to have more troubles with patient education approaches.

2. Methodologies

2.1 Study design and objectives

The study design was an observational transversal study regarding the self-reported practice of Portuguese physiotherapists who manage patients with CLBP. This design was the most appropriate for this study (Kelley et al., 2003).

The purpose of this study was to characterize the self-reported clinical use of patient education by Portuguese physiotherapists who manage patients with CLBP, namely regarding i) patient education content, ii) delivery of patient education, iii) the frequency of this intervention, iv) the formal education deemed needed to this intervention, v) the learning needs identified and vi) identification of barriers and contributing factors to the implementation of evidence based practice.

Lastly, it also aimed to investigate the influence of physiotherapists experience with individuals with CLBP on the self-reported patient education practice, looking for relationships between the self-reported practice of patient education and the physiotherapist years of experience working with individuals with CLBP.

2.2 Participants

2.2.1 Inclusion and exclusion criteria

The participants were physiotherapists working in Portugal, whether in public or private sector, that worked with patients with CLBP. All physiotherapists that worked with patients with CLBP aged between 18 and 65 years old, were included. Physiotherapists that did not graduate in Portugal and those that were working abroad were excluded.

2.2.2 Recruitment Strategies

Participant recruitment used a geometric propagation approach (non probabilistic sample by convenience, also called snowball sampling) (Maroco, 2018), started by the previous and present students of the Master in Physiotherapy in Musculoskeletal Conditions from Health School of Setúbal Polytechnic Institute, in partnership with Nova Medical School/Faculdade de Ciências Médicas (NMS/FCM) and National School of

Public Health (ENSP) of New University of Lisbon (UNL). Collaboration was also requested from the Interest Group in Musculoskeletal Physiotherapy (GIFME) of the Portuguese Physiotherapists Association (APFisio) for the dissemination of the questionnaire amongst its members. All the questionnaires were sent via email. In the final page of the questionnaire participants were asked to identify at least 3 colleagues that had given permission to share their email addresses, in order to reach more participants.

2.3 Ethics

The project for this study was submitted to the Specialized Ethics Commission for Research of the Health School of Setúbal Polytechnic Institute (CEEI-ESS), that verified all the inherent ethical aspects, and from which it was approved under the code 54/AM/2020 (Appendix 1).

Before completion of the questionnaire, participants were requested to provide informed consent, which was included in the first section with an explanation of the objective and procedures of the study, risks and potential advantages, as well as all the actions taken to ensure anonymity, confidentiality and data protection. It was explained to all potential participants that their participation was voluntary, and that they could refuse to answer any question, or abandon the study at any moment in time, without any disadvantages or constraints.

2.4 Data collection

2.4.1 Instrument of data collection

Considering similar studies, and according to the topics of each study (Forbes et al., 2017; Gracey et al., 2002; Keating et al., 2016; Li & Bombardier, 2001; Moniz, 2012; Pensri et al., 2005; Setchell et al., 2019), three sections were included in the questionnaire, the first regarding characterizarion of the professional, and the following two of its clinical practice, namely characterization of patient education, and the barriers, contributing factors, and learning needs to an evidence informed practice, especially regarding patient education. A questionnaire previously developed to characterize Australian physiotherapists use of patient education was used as a starting point for this

study (Forbes et al., 2017). In collaboration with the authors (Forbes et al., 2017), the questionnaire for this study was developed, integrating translated questions and also new questions that were considered relevant for the context and aims of this study.

The instrument of data collection used in this study (Appendices 2 and 3) was a questionnaire hosted on the online platform LymeSurvey. This questionnaire was developed based on an extensive literature review and discussion with more experienced physiotherapists, following the steps suggested by Oppenheim (1992): 1) Formulating questions; 2) Validation by a panel of experts; 3) Pilot study.

Taking into account the objectives of this study, the domains identified in the literature review, and the topics to be questioned, a matrix was developed with the information to be obtained with the questionnaire, videlicet:

1. Characterization of physiotherapists: including questions about gender, age, where they had their training, their qualifications, number of years of experience, work setting and additional training in the area.
2. Characterization of patient education: including information on the number of sessions and the percentage of these that includes patient education, the content of patient education activities and a rating of importance of each activity from the perspective of the physiotherapist, how this content is delivered and how much time is spent during a consultation.
3. Identification of perceived barriers, contributing factors, and learning needs: including barriers and contributing factors to evidence informed practice according to the updated clinical guidelines. Participants were asked to rate how much they agree or disagree with barriers, contributing factors and learning needs identified in the literature review, as well as to describe any other information deemed relevant.

Lastly, it was decided which type of question to be used. On the first domain, it was mostly chosen closed questions, dichotomic and multiple choice. On the second domain, since it was questioned the frequency or agreement of the participants, it was chosen a combination of 5-point Likert scale questions presented on matrix. On the last domain, the questions followed the same structure as the second domain, however it was added an open question after each matrix, to allow the participants to elaborate on their answers, explicitly naming other barriers, learning necessities and contributing factors.

2.4.2 Pilot Study

The pilot study consisted in the creation of a grid of appraisal of the questionnaire by a panel of experts, with two sections. The first had six questions that aimed to characterize the demographics of the expert. The latter, with 7 questions (yes/no and comments) and one last question asking how long it took to reply, that granted to gauge the robustness of the instrument, along with its correct functioning in the online format. For the fulfilment of this pilot, 7 experts with over ten years of clinical practice were contacted via email, with an explanation of the objective of the pilot and the questionnaire to be answered (Appendix 4). The responses were then analysed, and the corrections considered necessary were made (Appendix 5). This pilot took 4 weeks, between the 12th of March and the 12th of April of 2020.

2.4.3 Procedures for data collection

The online platform automatically generated a code associated with the email, which allowed controlled access to the questionnaire. An invitation was sent via email to each participant, with a brief description of the study, invitation letter, identification of the researchers and informed consent. The informed consent, being digital, had one item to check where the participant declared that: "I accept to participate in the study, with the safeguard of the confidentiality and anonymously, and without personal, ethic or moral prejudice". The participants then had a chance to print the informed consent, giving the possibility of having a physical copy. In order to maximize the response rate, it was sent a reminder via mail every two weeks after the initial invitation. The IP address of the participants was not registered nor stored, whereby all the answers remained anonymous.

The data collection elapsed in a period of 14 weeks, between 15 of May and 31 of August of 2020, with resource to the questionnaire on the online platform LymeSurvey, developed for this purpose.

2.5 Data analysis

The data analysis was carried out using the program Statistical Package for the Social Sciences (SPSS) version 23.0, resorting to descriptive and inferential statistics.

Firstly, descriptive statistics were used to organize the data regarding the characterization of the participants (gender, age, graduation and post-graduation training, work experience), also the characterization of patient education (number of sessions, time dedicated to educational activities, frequency and perceived importance of patient education activities, frequency of education delivery approaches and methods of evaluation of education), and perceived barriers, contributing factors and perceived learning needs.

The nominal or categorical variables were analysed with absolute and relative frequency measurements, and the scale variables with central tendency and dispersion measurements, i.e., mean and standard deviation.

The data was compiled into qualitative nominal variables, proceeding with their dichotomization. In the questions where a 5-point Likert scale was used, the dichotomization was made putting together the first two (Never and Rarely or Not important and Little important) showing an overall negative vision, and the last two (Frequently and Always or Important and Very Important) revealing a positive response. The middle answer (Occasionally or Somewhat important) was not considered for discussion since it expressed an indifferent or not strong opinion.

The normality of the data was analysed through the Kolmogorov-Smirnov test. Since the normality was not verified, and the data were put together into qualitative nominal data, and dichotomized, the non-parametric Mann-Whitney U test was used to look for differences between variables of the last two sections (practice characterization and barriers, contributing factors and learning needs) and graduation, post-graduation training and years of experience.

In order to define a cut-off point for years of experience, an extensive review of the literature was undertaken. Previous research varied greatly in the definition of novice and/or expert practitioners. Novices were considered since undergraduate training to up to 5 years of experience. The range of years of experience to define one as an expert goes from more than 3 years to over 1 decade of experience (Doody & McAteer, 2002; Jensen et al., 1990; Smith et al., 2010; Wainwright et al., 2011). There appears to be no consensus as to what constitutes a novice or an expert in physiotherapy in terms of years of experience. There is a recognition that other factors may also be important, including postgraduate training (King and Bithell, 1988) and a multi-dimensional knowledge base (Jensen et al, 2000). All participants with 5 or less years of experience were therefore

defined as ‘novice’, and participants with 6 or more years were categorised as ‘non-novice’. A Mann-Whitney U test was used to determine differences between aspects of practice characterization and years of experience [novice ≤5 years of experience]. This analisis was repeated to look for differences between physiotherapists’ perceptions (barriers, contributing factors and learning needs) and years of experience [novice ≤5 years of experience].

Significance level for all tests was set at $p<0.05$.

3. Results

3.1 Participants characterization

A total of 194 invitations were sent via email, where each participant was invited to recruit new participants through forwarding the email invitation. A total of 195 survey responses were received between the 15th of May and the 31st of August of 2020. From these 195, only 112 were complete, being the ones accounted for this study. Demographic characteristics of the sample (Table 1) reflect this data in terms of gender, age, years of experience, academic qualifications and work sector. The mean age of participants was 30 years old (±9.56), the majority were female (n=72, 64.3%), one quarter had a master's qualification (n=28, 25%), and less than half (n=31, 27.7%) had post graduate training related to CLBP. The majority of participants worked in the private sector (n=64, 57.1%), had less than 5 years of experience of practice (n=72, 64.3%) and therefore, had less than 5 years of experience with CLBP (n=79, 70.6%).

Table 1. Demographic Characterization of Participants

Variable		Category	Frequency (%)	Category	Frequency (%)
Gender		Female	72 (64.3 %)	Novices Non-novices	52 (71.2 %) 20 (51.3 %)
		Male	40 (35.7 %)	Novices Non-novices	21 (28.8 %) 19 (48.7 %)
Age	Mean and std Deviation		30.3 years ± 9.59	Novices Non-novices	25.4 years ± 2.53 39.0 years ± 11.16
	Min and Max		21 years 66 years	Novices Non-novices	21 years 27 years 25 years 66 years
Academic Qualification		Licenciate	84 (65.0 %)	Novices Non-novices	60 (82.2 %) 24 (61.5 %)
		Masters	28 (25.0 %)	Novices Non-novices	13 (17.8 %) 15 (38.5 %)
Postgraduation Training		Yes	31 (27.7 %)	Novices Non-novices	43 (58.9 %) 20 (51.3 %)
		No	81 (72.3 %)	Novices Non-novices	30 (41.1 %) 19 (48.7 %)
Work Sector		Public	19 (17.0 %)	Novices Non-novices	9 (12.3 %) 10 (25.6 %)
		Private	64 (57.1 %)	Novices Non-novices	43 (58.9 %) 21 (53.9 %)
		Conventionate	21 (18.8 %)	Novices Non-novices	18 (24.7 %) 3 (7.7 %)
		Mixed	8 (7.1 %)	Novices Non-novices	3 (4.1 %) 5 (12.8 %)
Years of Experience		≤ 5	72 (64.3 %)	Novices Non-novices	72 (98.6 %) 0 (0 %)
		≥ 6	40 (35.7 %)	Novices Non-novices	1 (1.4 %) 39 (100 %)
Years of Experience with LPB		≤ 5	79 (70.6 %)	Novices Non-novices	73 (100 %) 6 (15.4 %)
		≥ 6	33 (29.4 %)	Novices Non-novices	0 (0 %) 33 (84.6 %)

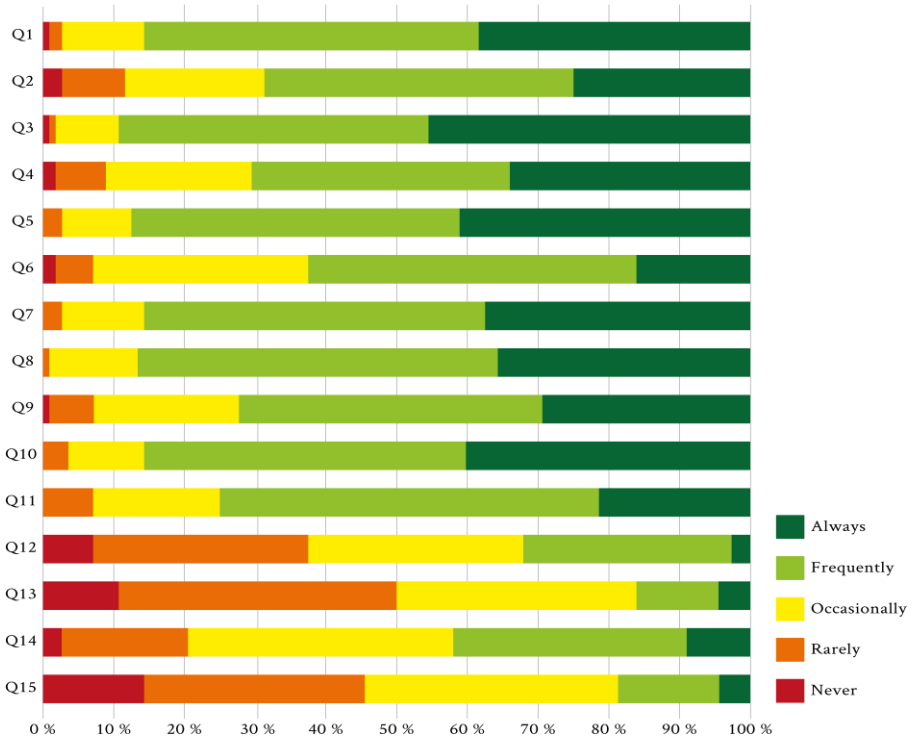
3.2 Practice Characterization – Patient education

3.2.1 Frequency of patient education activities

Four patient education activities were reported by over 85% of participants as being used "frequently" or "always": (Q1) providing verbal or written instructions needed for a basic exercise programme (n=96, 85.7%); (Q3) advice or teaching self-management strategies (n=100, 89.3%); (Q5) asking and replying to the patients' concerns (n=98, 87.5%); and, (Q10) general health promotion (n=96, 85.7%).

Counseling about stress/ emotional problems or necessary psychological support (Q14) was reported as being used "frequently" or "always" only by 42% of participants (n=47, 41.9%). The frequency of educational activities used by physiotherapists is outlined in Graphic 1.

Graphic 1. Perceived Frequency of Patient Education Activities



Q1. Providing verbal or written instruction needed for a basic exercise programme
Q2. Providing information about the patient's condition or diagnosis
Q3. Advice or teaching self-manage strategies
Q4. Advice or teaching correct posture and movement (for the patient)
Q5. Asking and replying to the patient's concerns
Q6. Providing information about the patient's prognosis
Q7. Advice or strategies to perform activities of daily living
Q8. Advice or teaching activity pacing
Q9. Exploring the patient's ideas and perceptions
Q10. General health promoting
Q11. Teaching problem-solving strategies
Q12. Explaining pain neurophysiology / mind-body description of pain
Q13. Advice on use of assistive devices or equipment
Q14. Counselling about stress / emotional problems or necessary psychological support
Q15. Advice on social support

The non-novice group reported a higher frequency of some patient education activities than the novice group, and these differences were statistically significant. These activities were: providing information about the patient's condition or diagnosis (p=0.009); asking and replying to the patient's concerns (p=0.009); providing information about the patient's prognosis (p=0.004); advice or strategies to perform activities of daily living (p=0.010); exploring the patient's ideas and perceptions (p=0.004); explaining pain neurophysiology / mind-body description of pain (p=0.002) and advice on use of assistive devices or equipment (p=0.011). The frequency of educational activities used by novice and non-novice physiotherapists is outlined in Table 2.

Table 2. Perceived frequency of patient educational activities by novice and non-novice physiotherapists.

Variable		Frequency (%)					
		Never	Rarely	Occasionally	Frequently	Always	Difference p value - 2 tailed
Providing verbal or written instruction needed for a basic exercise programme	Novices	1 (1.3 %)	1 (1.3 %)	11 (13.9 %)	38 (48.1 %)	28 (35.4%)	0.241
	Non-novices	0 (0.0 %)	1 (3.0 %)	2 (6.1 %)	15 (45.5 %)	15 (45.5 %)	
Providing information about the patient's condition or diagnosis	Novices	3 (3.8 %)	9 (11.4 %)	17 (21.5 %)	35 (44.3 %)	15 (19.0 %)	0.009*
	Non-novices	0 (0.0 %)	1 (3.0 %)	5 (15.2 %)	14 (42.4 %)	13 (39.4 %)	
Advice or teaching self-management strategies	Novices	1 (1.3 %)	1 (1.3 %)	8 (10.1 %)	37 (46.8 %)	32 (40.5 %)	0.081
	Non-novices	0 (0.0 %)	0 (0.0 %)	2 (6.1 %)	12 (36.4 %)	19 (57.6 %)	
Advice or teaching correct posture and movement (for the patient)	Novices	1 (1.3 %)	6 (7.6 %)	16 (20.3 %)	33 (41.8 %)	23 (29.1 %)	0.352
	Non-novices	1 (3.0 %)	2 (6.1 %)	7 (21.2 %)	8 (24.2 %)	15 (45.5 %)	
Asking and replying to the patient's concerns	Novices	0 (0.0 %)	1 (1.3 %)	11 (13.9 %)	41 (51.9 %)	26 (33.0 %)	0.009*
	Non-novices	0 (0.0 %)	2 (6.1 %)	0 (0.0 %)	11 (33.3 %)	20 (60.6 %)	
Providing information about the patient's prognosis	Novices	2 (2.5 %)	6 (7.6 %)	28 (35.4%)	33 (41.8 %)	10 (12.7 %)	0.004*
	Non-novices	0 (0.0 %)	0 (0.0 %)	6 (18.2 %)	19 (57.6 %)	8 (24.2 %)	
Advice or strategies to perform activities of daily living	Novices	0 (0.0 %)	3 (3.8 %)	11 (13.9 %)	41 (51.9 %)	24 (30.4 %)	0.010*
	Non-novices	0 (0.0 %)	0 (0.0 %)	2 (6.1 %)	13 (39.4 %)	18 (54.5 %)	
Advice or teaching activity pacing	Novices	0 (0.0 %)	1 (1.3 %)	10 (12.7 %)	43 (54.4 %)	25 (31.6 %)	0.223
	Non-novices	0 (0.0 %)	0 (0.0 %)	4 (12.1 %)	14 (42.4 %)	15 (45.5 %)	
Exploring the patient's ideas and perceptions	Novices	1 (1.3 %)	4 (5.0 %)	22 (27.8 %)	35 (44.3 %)	17 (21.5 %)	0.004*
	Non-novices	0 (0.0 %)	3 (9.1 %)	1 (3.0 %)	13 (39.4 %)	16 (48.5 %)	
General health promotion	Novices	0 (0.0 %)	2 (2.5 %)	10 (12.7 %)	36 (45.6 %)	31 (39.2 %)	0.720
	Non-novices	0 (0.0 %)	2 (6.1 %)	2 (6.1 %)	15 (45.5 %)	14 (42.4 %)	
Teaching problem-solving strategies	Novices	0 (0.0 %)	5 (6.3 %)	16 (20.3 %)	41 (51.9 %)	17 (21.5 %)	0.790
	Non-novices	0 (0.0 %)	3 (9.1 %)	4 (12.1 %)	19 (57.6 %)	7 (21.2 %)	
Explaining pain neurophysiology/ mind-body description of pain	Novices	8 (10.1 %)	29 (36.7 %)	22 (27.8 %)	17 (21.5 %)	3 (3.8 %)	0.002*
	Non-novices	0 (0.0 %)	5 (15.2 %)	12 (36.4 %)	16 (48.5 %)	0 (0.0 %)	
Advice on use of assistive devices or equipment	Novices	10 (12.7 %)	35 (44.3 %)	25 (31.6 %)	7 (8.9 %)	2 (2.5 %)	0.011*
	Non-novices	2 (6.1 %)	9 (27.3 %)	13 (39.4 %)	6 (18.2 %)	3 (9.1 %)	
Counselling about stress / emotional problems or necessary psychological support	Novices	2 (2.5 %)	17 (21.5 %)	29 (36.7 %)	25 (31.6 %)	6 (7.6 %)	0.192
	Non-novices	1 (3.0 %)	3 (9.1 %)	13 (39.4 %)	12 (36.4 %)	4 (12.1 %)	
Advice on social support	Novices	12 (15.2 %)	28 (35.4%)	26 (32.9 %)	9 (11.4 %)	4 (5.1 %)	0.152
	Non-novices	4 (12.1 %)	7 (21.2 %)	14 (42.4 %)	7 (21.2 %)	1 (3.0 %)	

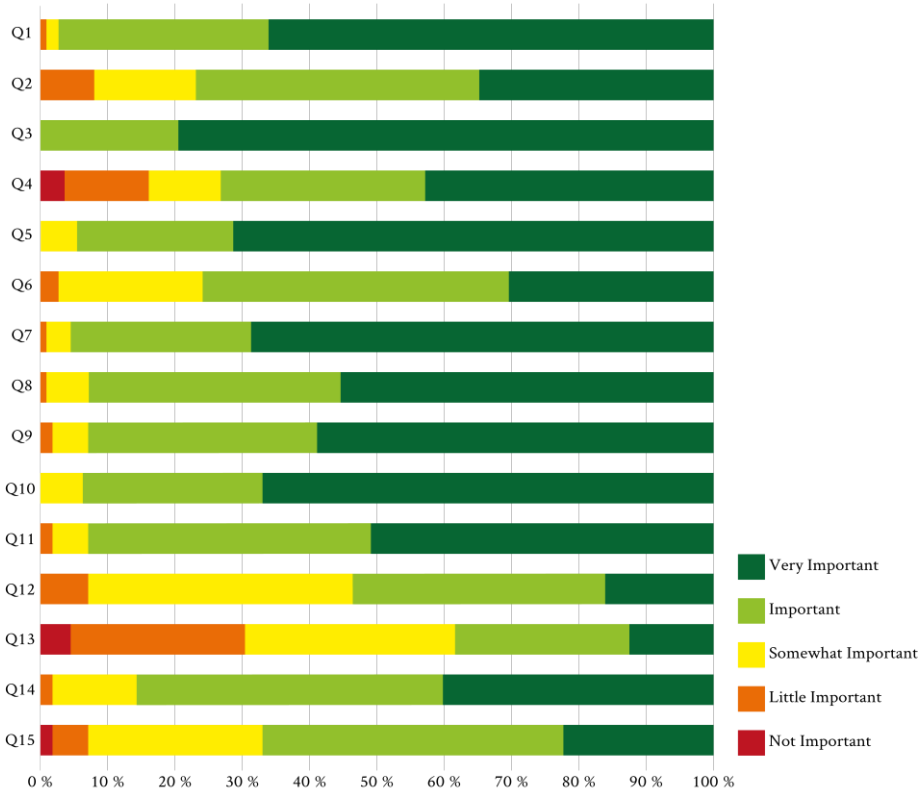
3.2.2 Perceived importance of patient education activities

Five activities were reported by over 85% of participants as being "important" or "very important": (Q1) providing verbal or written instructions needed for a basic exercise programme (n=109, 97.3%); (Q14) counseling about stress/ emotional problems or necessary psychological support (n=96, 85.7%); (Q3) advice or teaching self-management strategies (n=112, 100%); (Q5) asking and replying to the patients' concerns

(n=106, 94.3%); (Q10) general health promotion (n=105, 93.7%). For the last 3 activities mentioned, all respondents reported at least "somewhat important".

Despite over 50% (n=60, 53.6%) reporting (Q12) explaining pain neurophysiology/ mind-body description of pain as "important" or "very important", less than 50% (n=36, 32.4%) reported using it "frequently" or "always". Equally, while over 85% (n=96, 85.7%) consider (Q14) counseling about stress/ emotional problems or necessary psychological support important, less than 50% (n=47, 41.9%) report using it "frequently" or "always". The perceived importance of educational activities used by physiotherapists is outlined in Graphic 2.

Graphic 2. Perceived Importance of Patient Education Activities



Q1. Providing verbal or written instruction needed for a basic exercise programme
Q2. Providing information about the patient's condition or diagnosis
Q3. Advice or teaching self-manage strategies
Q4. Advice or teaching correct posture and movement (for the patient)
Q5. Asking and replying to the patient's concerns
Q6. Providing information about the patient's prognosis
Q7. Advice or strategies to perform activities of daily living
Q8. Advice or teaching activity pacing
Q9. Exploring the patient's ideas and perceptions
Q10. General health promoting
Q11. Teaching problem-solving strategies
Q12. Explaining pain neurophysiology / mind-body description of pain
Q13. Advice on use of assistive devices or equipment
Q14. Counselling about stress / emotional problems or necessary psychological support
Q15. Advice on social support

There were no statistically significant differences between the novice and non-novice groups regarding perceived importance of patient education activities. The perceived importance of educational activities used by novice and non-novice physiotherapists is outlined in Table 3.

Table 3. Perceived importance of patient education activities by novice and non-novice physiotherapists.

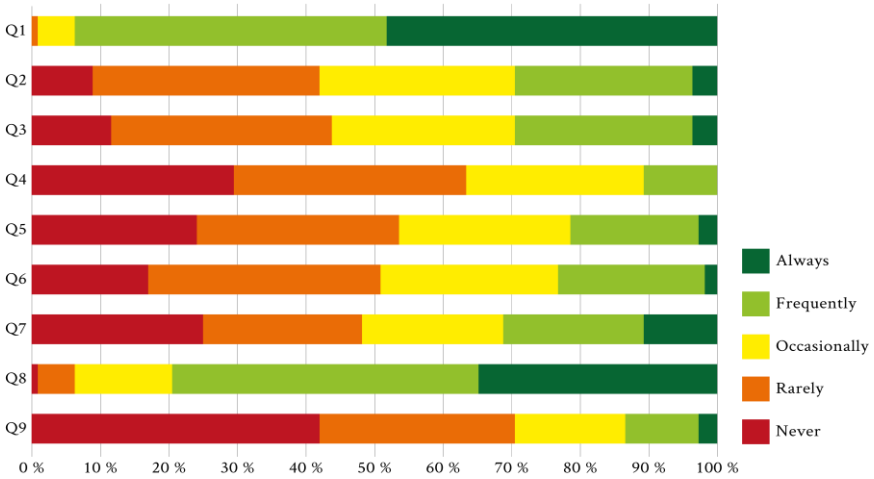
Variable		Perceived Importance (%)					
		Not Important	Little Important	Somewhat Important	Important	Very Important	Difference p value - 2 tailed
Providing verbal or written instruction needed for basic a exercise programme	Novices	0 (0.0 %)	1 (1.3 %)	0 (0.0 %)	28 (35.4%)	50 (63.3 %)	0.442
	Non-novices	0 (0.0 %)	0 (0.0 %)	2 (6.1 %)	7 (21.2 %)	24 (72.7 %)	
Providing information about the patient's condition or diagnosis	Novices	0 (0.0 %)	6 (7.6 %)	14 (17.7 %)	34 (43.0 %)	25 (31.6 %)	0.368
	Non-novices	0 (0.0 %)	3 (9.1 %)	4 (12.1 %)	12 (36.4 %)	14 (42.4 %)	
Advice or teaching self-management strategies	Novices	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	16 (20.3 %)	63 (79.7 %)	0.909
	Non-novices	0 (0.0 %)	0 (0.0 %)	0 (0.0 %)	7 (21.2 %)	26 (78.8 %)	
Advice or teaching correct posture and movement (for the patient)	Novices	2 (2.5 %)	9 (11.4 %)	10 (12.7 %)	25 (31.6 %)	33 (41.8 %)	0.989
	Non-novices	2 (6.1 %)	5 (15.2 %)	2 (6.1 %)	9 (27.3 %)	15 (45.5 %)	
Asking and replying to the patient's concerns	Novices	0 (0.0 %)	0 (0.0 %)	4 (5.1 %)	17 (21.5 %)	58 (73.4 %)	0.482
	Non-novices	0 (0.0 %)	0 (0.0 %)	2 (6.1 %)	9 (27.3 %)	22 (66.7 %)	
Providing information about the patient's prognosis	Novices	0 (0.0 %)	3 (3.8 %)	18 (22.8 %)	38 (48.1 %)	20 (25.3 %)	0.081
	Non-novices	0 (0.0 %)	0 (0.0 %)	6 (18.2 %)	13 (39.4 %)	14 (42.4 %)	
Advice or strategies to perform activities of daily living	Novices	0 (0.0 %)	1 (1.3 %)	2 (2.5 %)	22 (27.8 %)	54 (68.4 %)	0.947
	Non-novices	0 (0.0 %)	0 (0.0 %)	2 (6.1 %)	8 (24.2 %)	23 (69.7 %)	
Advice or teaching activity pacing	Novices	0 (0.0 %)	1 (1.3 %)	5 (6.3 %)	30 (38.0 %)	43 (54.4 %)	0.728
	Non-novices	0 (0.0 %)	0 (0.0 %)	2 (6.1 %)	12 (36.4 %)	19 (57.6 %)	
Exploring the patient's ideas and perceptions	Novices	0 (0.0 %)	2 (2.5 %)	4 (5.1 %)	27 (34.2 %)	46 (58.2 %)	0.775
	Non-novices	0 (0.0 %)	0 (0.0 %)	2 (6.1 %)	11 (33.3 %)	20 (60.6 %)	
General health promotion	Novices	0 (0.0 %)	0 (0.0 %)	6 (7.6 %)	19 (24.1 %)	54 (68.4 %)	0.769
	Non-novices	0 (0.0 %)	0 (0.0 %)	1 (3.0 %)	11 (33.3 %)	21 (63.3 %)	
Teaching problem-solving strategies	Novices	0 (0.0 %)	1 (1.3 %)	4 (5.1 %)	35 (44.3 %)	39 (49.4 %)	0.753
	Non-novices	0 (0.0 %)	1 (3.0 %)	2 (6.1 %)	12 (36.4 %)	18 (54.5 %)	
Explaining pain neurophysiology/ mind-body description of pain	Novices	0 (0.0 %)	6 (7.6 %)	33 (41.8 %)	27 (34.2 %)	13 (16.5 %)	0.497
	Non-novices	0 (0.0 %)	2 (6.1 %)	11 (33.3 %)	15 (45.5 %)	5 (15.2 %)	
Advice on use of assistive devices or equipment	Novices	4 (5.1 %)	20 (25.3 %)	27 (34.2 %)	20 (25.3 %)	8 (10.1 %)	0.414
	Non-novices	1 (3.0 %)	9 (27.3 %)	8 (24.2 %)	9 (27.3 %)	6 (18.2 %)	
Counselling about stress / emotional problems or necessary psychological support	Novices	0 (0.0 %)	1 (1.3 %)	10 (12.7 %)	36 (45.6 %)	32 (40.5 %)	0.862
	Non-novices	0 (0.0 %)	1 (3.0 %)	4 (12.1 %)	15 (45.5 %)	13 (39.4 %)	
Advice on social support	Novices	0 (0.0 %)	4 (5.1 %)	22 (27.8 %)	32 (40.5 %)	21 (26.6 %)	0.264
	Non-novices	2 (6.1 %)	2 (6.1 %)	7 (21.2 %)	18 (54.5 %)	4 (12.1 %)	

3.2.3 Frequency of education delivery approaches

The education delivery approach (Q1) physical demonstration of exercise, movement, posture or activity was reported by over 90% as used "frequently" or "always" (n=105, 93.7%). Over half of the respondents reported "never" or "rarely" (Q4) using generic handouts (n=71, 63.4%). Between individual and group education (Q8 and Q9), the respondents preferred individual (n=89, 79.4%), with the majority "never" or "rarely" doing group education (n=79, 70.6%).

Less than 25% of the participants reported (Q6) using links to websites or other online content "frequently" or "always" (n=22, 21.5%). The frequency of educational delivery approaches used by physiotherapists is outlined in Graphic 3.

Graphic 3. Frequency of Education Delivery Approaches



Q1. Physical demonstration of exercise, movement, posture or activity
Q2. Use of anatomic models or pictures
Q3. Use of photography or video
Q4. Use of generic handouts/pamphlets
Q5. Use of personalised handouts
Q6. Links to websites or other online content
Q7. Feerback, verbal, tactil, using information of devices (smartphones, stabilizer) or biofeedback (electromyography)
Q8. One-to-one discussion
Q9. Formal group education activities

The non-novice group reported a higher frequency of some education delivery approaches than the novice group, and these differences were statistically significant. These activities were: use of anatomic models or pictures (p=0.012); use of photography or video (p<0.001); use of generic handouts (p=0.002); use of personalized handouts (p=0.001); and, links to websites or other online content (p=0.013). The frequency of educational delivery approaches used by novice and non-novice physiotherapists is outlined in Table 4.

Table 4. Frequency of education delivery approaches by novice and non-novice physiotherapists.

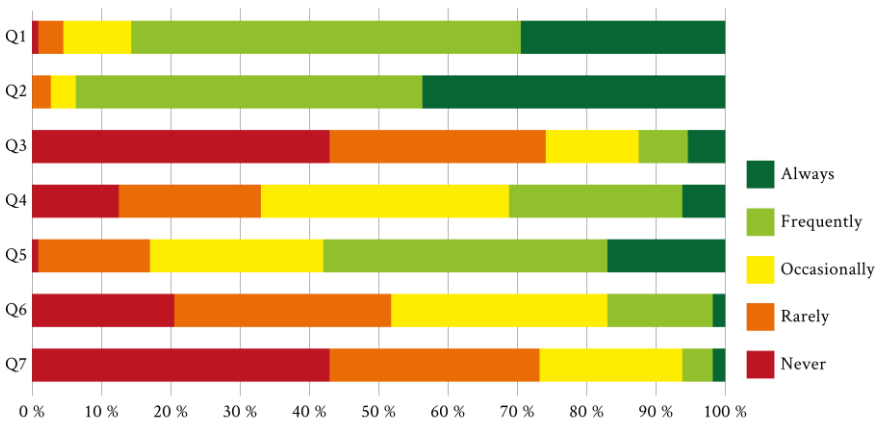
Variable		Frequency (%)					
		Never	Rarely	Occasionally	Frequently	Always	Difference p value - 2 tailed
Physical demonstration of exercise, movement, posture or activity	Novices	0 (0.0 %)	1 (1.3 %)	5 (6.3 %)	37 (46.8 %)	36 (45.6 %)	0.312
	Non-novices	0 (0.0 %)	0 (0.0 %)	1 (3.0 %)	14 (42.4 %)	18 (54.5 %)	
Use of anatomic models or pictures	Novices	9 (11.4 %)	27 (34.2 %)	27 (34.2 %)	14 (17.7 %)	2 (2.5 %)	0.012*
	Non-novices	1 (3.0 %)	10 (30.3 %)	5 (15.2 %)	15 (45.5 %)	2 (6.1 %)	
Use of photography or video	Novices	13 (16.5 %)	29 (36.7 %)	21 (26.6 %)	15 (19.0 %)	1 (1.3 %)	<0.001*
	Non-novices	0 (0.0 %)	7 (21.2 %)	9 (27.3 %)	14 (42.4 %)	3 (9.1 %)	
Use of generic handouts/pamphlets	Novices	28 (35.4 %)	29 (36.7 %)	17 (21.5 %)	5 (6.3 %)	0 (0.0 %)	0.002*
	Non-novices	5 (15.2 %)	9 (27.3 %)	12 (36.4 %)	7 (21.2 %)	0 (0.0 %)	
Use of personalized handouts	Novices	23 (29.1 %)	27 (34.2 %)	18 (22.8 %)	10 (12.7 %)	1 (1.3 %)	0.001*
	Non-novices	4 (12.1 %)	6 (18.2 %)	10 (30.3 %)	11 (33.3 %)	2 (6.1 %)	
Links to websites or other online content	Novices	16 (20.3 %)	30 (38.0 %)	19 (24.1 %)	12 (15.2 %)	2 (2.5 %)	0.013*
	Non-novices	3 (9.1 %)	8 (24.2 %)	10 (30.3 %)	12 (36.4 %)	0 (0.0 %)	
Feedback, verbal, tactile, using information of devices (example: smartphones, stabilizer) or biofeedback (ex: electromyography)	Novices	23 (29.1 %)	19 (24.1 %)	13 (16.5 %)	13 (16.5 %)	11 (13.9 %)	0.311
	Non-novices	5 (15.2 %)	7 (21.2 %)	10 (30.3 %)	10 (30.3 %)	1 (3.0 %)	
One-to-one discussion	Novices	1 (1.3 %)	5 (6.3 %)	14 (17.7 %)	34 (43.0 %)	25 (31.6 %)	0.088
	Non-novices	0 (0.0 %)	1 (3.0 %)	2 (6.1 %)	16 (48.5 %)	14 (42.4 %)	
Formal group education activities	Novices	36 (45.6 %)	25 (31.6 %)	9 (11.4 %)	7 (8.9 %)	2 (2.5 %)	0.070
	Non-novices	11 (33.3 %)	7 (21.2 %)	9 (27.3 %)	5 (15.2 %)	1 (3.0 %)	

3.2.4 Frequency of education evaluation approaches

The education evaluation approach (Q1) asking the patient to demonstrate was reported by over 85% as being used "frequently" or "always" (n=96, 85.7%). Nearly all participants reported that they (Q2) interpret patient signs "frequently" or "always" (n=105, 93.8%). Also, less than 10% report (Q7) analysing patient tasks through videos "frequently" or "always" (n=7, 6.3%).

Despite over half of the respondents reporting (Q5) asking the patient to repeat or discuss content in their own words (n=65, 58.1%) "frequently" or "always", less than a quarter reported (Q6) asking a family member or caregiver (n=19, 17%). The frequency of evaluation approaches is outlined in Graphic 4.

Graphic 4. Frequency of Education Evaluation Approaches



Q1. Ask the patient to demonstrate
Q2. Interpret signals from the patient
Q3. Use of questionnaires
Q4. Objective measures or standarts
Q5. Ask the patient to repeat or discuss content in their own words
Q6. Ask family members or caregivers
Q7. Analyse patient tasks through video

Regarding frequency of education evaluation approach, the non-novice group reported a higher frequency of interpreting signals from the patient (p=0.004) than the novice group, and this difference was statistically significant. The frequency of evaluation approaches by novice and non-novice physiotherapists is outlined in Table 5.

Table 5. Frequency of education evaluation approaches by novice and non-novice physiotherapists.

Variable		Frequency (%)					
		Never	Rarely	Occasionally	Frequently	Always	Difference p value - 2 tailed
Ask the patient to demonstrate	Novices	0 (0.0 %)	4 (5.1 %)	7 (8.9 %)	49 (62.0 %)	19 (24.1 %)	0.160
	Non-novices	1 (3.0 %)	0 (0.0 %)	4 (12.1 %)	14 (42.4 %)	14 (42.4 %)	
Interpret signals from the patient	Novices	0 (0.0 %)	2 (2.5 %)	3 (3.8 %)	47 (59.5 %)	27 (34.2 %)	0.004*
	Non-novices	0 (0.0 %)	1 (3.0 %)	1 (3.0 %)	9 (27.3 %)	22 (66.7 %)	
Use of questionnaires	Novices	35 (44.3 %)	25 (31.6 %)	10 (12.7 %)	6 (7.6 %)	3 (3.8 %)	0.488
	Non-novices	13 (39.4 %)	10 (30.3 %)	5 (15.2 %)	2 (6.1 %)	3 (9.1 %)	
Objective measures or standards	Novices	12 (15.2 %)	18 (22.8 %)	27 (34.2 %)	17 (21.5 %)	5 (6.3 %)	0.094
	Non-novices	2 (6.1 %)	5 (15.2 %)	13 (39.4 %)	11 (33.3 %)	2 (6.1 %)	
Ask the patient to repeat or discuss content in their own words	Novices	1 (1.3 %)	12 (15.2 %)	20 (25.3 %)	33 (41.8 %)	13 (16.5 %)	0.995
	Non-novices	0 (0.0 %)	6 (18.2 %)	8 (24.2 %)	13 (39.4 %)	6 (18.2 %)	
Ask family members or caregivers	Novices	18 (22.8 %)	24 (30.4 %)	24 (30.4 %)	11 (13.9 %)	2 (2.5 %)	0.531
	Non-novices	5 (15.2 %)	11 (33.3 %)	11 (33.3 %)	6 (18.2 %)	0 (0.0 %)	
Analyse patient tasks through video	Novices	37 (46.8 %)	23 (29.1 %)	15 (19.0 %)	3 (3.8 %)	1 (1.3 %)	0.164
	Non-novices	11 (33.3 %)	11 (33.3 %)	8 (24.2 %)	2 (6.1 %)	1 (3.0 %)	

3.2.5 Characterization of patient education distribution within sessions

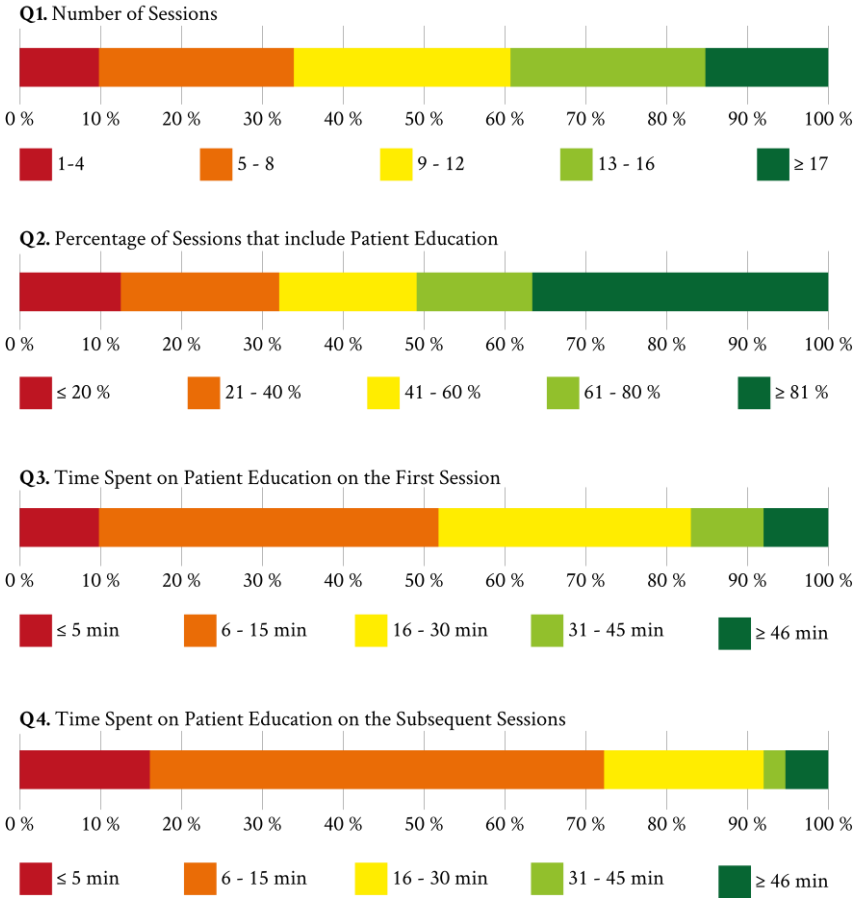
The number of sessions used for the treatment of patients with CLBP (Q1) was homogeneously spread among 5-8 (n=27, 24.1%), 9-12 (n=30, 26.8%) and 13-16 (n=27, 24.1%). This percentage was lower for 1-4 sessions (n=11, 9.8%) and ≥17 sessions (n=17, 15.2%)

The percentage of sessions which included patient education also varied (Q2), although there was a slight tendency for a higher percentage of sessions (≥81%) to involve patient education. This might be due to the inconstant number of sessions. It can be noticed that if a physiotherapist uses a lower number of sessions, it will be easier to have educational activities on a higher percentage of sessions. On the other hand, if a physiotherapist uses a higher number of sessions with a patient, (s)he would need to have educational activities in more sessions in order to have a higher percentage of sessions with patient education. Regardless, education seemed to play an important role since 36.6% of the participants provided it in ≥81% of the sessions.

Information about the characterization of sessions regarding patient education is evenly dispersed. Most reported over 15 minutes of patient education per session, with this number increasing from the first session to subsequent sessions. Most participants reported spending 6-15 minutes (n=47, 42%) or 16-30 minutes (n=35, 31.3%) on educational activities within the initial consultation (Q3). The most commonly reported time spent with patient education in subsequent sessions (Q4) was also 6-15 minutes (n=63, 56.3%). Significantly more time was reported to be spent undertaking patient

education in initial consultations compared to subsequent consultations ($p<0.001$). The characterization of patient education within sessions is outlined in Graphic 5.

Graphic 5. Frequency of Characterization of Sessions Regarding Patient Education



Non-novices reported to never (0%) spend less than 6 minutes on the first session, meaning that the non-novices reported to always undertake patient education activities. The characterization of patient education within sessions by novice and non-novice physiotherapists is outlined in table 6.

Table 6. Characterization of sessions regarding patient education by novice and non-novice physiotherapists.

Variable	Category		Frequency (%)
Number of Sessions	1 - 4	Novices	5 (6.3 %)
		Non-novices	6 (18.2 %)
	5 - 8	Novices	18 (22.8 %)
		Non-novices	9 (27.3 %)
	9 - 12	Novices	20 (25.3 %)
		Non-novices	10 (30.3 %)
	13 - 16	Novices	23 (29.1 %)
		Non-novices	4 (12.1 %)
	≥ 17	Novices	13 (16.5 %)
		Non-novices	4 (12.1 %)
Percentage of Sessions that include Patient Education	≤ 20 %	Novices	11 (13.9 %)
		Non-novices	3 (9.1 %)
	21 - 40 %	Novices	18 (22.8 %)
		Non-novices	4 (12.1 %)
	41 - 60 %	Novices	12 (15.2 %)
		Non-novices	7 (21.2 %)
	61 - 80 %	Novices	10 (12.7 %)
		Non-novices	6 (18.2 %)
	≥ 81 %	Novices	28 (35.4 %)
		Non-novices	13 (39.4 %)
Time spent on Patient Education on the first Session	≤ 5	Novices	11 (13.9 %)
		Non-novices	0 (0 %)
	6 - 15	Novices	32 (40.5 %)
		Non-novices	15 (45.5 %)
	16 - 30	Novices	25 (31.6 %)
		Non-novices	10 (30.3 %)
	31 - 45	Novices	6 (7.6 %)
		Non-novices	4 (12.1 %)
	≥ 46	Novices	5 (6.3 %)
		Non-novices	4 (12.1 %)
Time spent on Patient Education on the subsequent Sessions	≤ 5	Novices	14 (17.7 %)
		Non-novices	4 (12.1 %)
	6 - 15	Novices	46 (58.2 %)
		Non-novices	17 (51.5 %)
	16 - 30	Novices	14 (17.7 %)
		Non-novices	8 (24.2 %)
	31 - 45	Novices	2 (2.5 %)
		Non-novices	1 (3.0 %)
	≥ 46	Novices	3 (3.8 %)
		Non-novices	3 (9.1 %)

3.3 Identification of barriers, contributing factors and learning needs

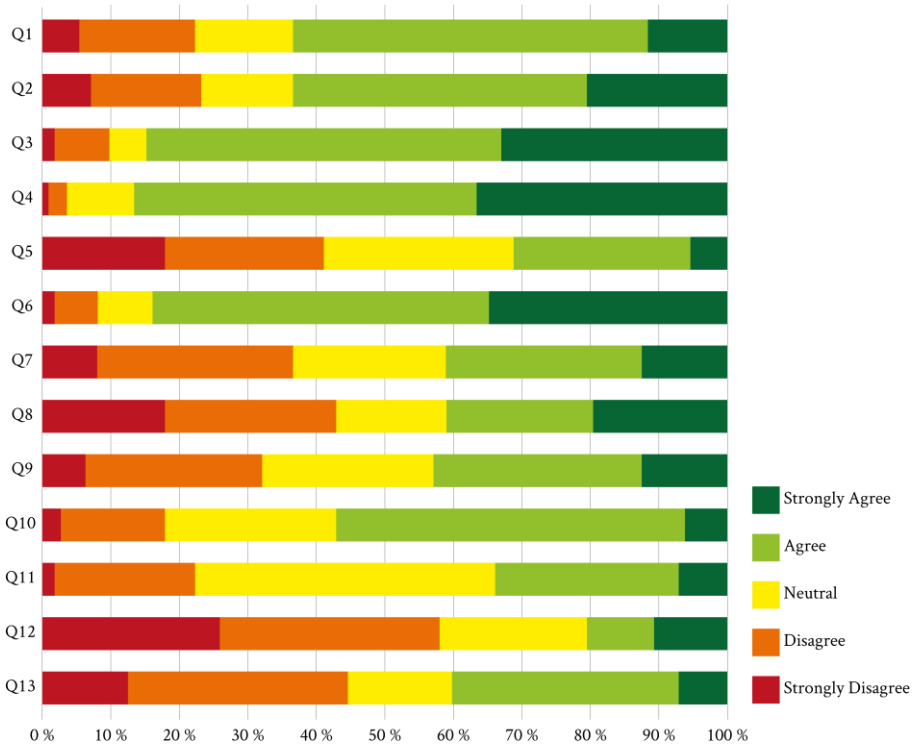
3.3.1 Perceived barriers to patient education

Three items were agreed by over 80% of participants as being a barrier to patient education: (Q3) emotional status of patient (anxiety, fear/ apprehensiveness) (n=95,

84.8%); (Q4) non-cooperative attitude of patient (n=97, 86.6%); and, (Q6) patient assuming a passive role (n=94, 83.9%).

Under half of all participants (n=45, 40.1%) (Q13) agreed or strongly agreed to have difficulties in using education strategies. A similar proportion of participants (n=46, 41.1%) (Q7) identified their lack of knowledge about the clinical condition. Additionally (n=48, 42.9%) (Q9) reported their lack of knowledge to address psychological aspects. The majority of respondents disagreed that a lack of privacy in clinic environment is a barrier to patient education (n=65, 58%). The perceived barriers to patient education are outlined in Graphic 6.

Graphic 6. Perceived Barriers to Patient Edication



Q1. Literacy of patient

Q2. Lack of trust or rapport between patient and therapist / Therapeutic relationship with patient

Q3. Emotinal status of patient (anxiety, fear/apprehensiveness)

Q4. Non cooperative attitude of patient (demotivation, rejection)

Q5. Patient not understanding Portuguese language

Q6. Patient assuming a passive role

Q7. My lack of knowledge on the topic about the clinical condition

Q8. Lack of time allocated for treatment session

Q9. My lack of knowledge to assess and address psycological aspects

Q10. Previous knowledge of patient on LBP

Q11. Lack of participation by the family members

Q12. Lack of privacy in the clinic environment

Q13. My difficulties in using education strategies

In the open reply question regarding barriers to patient education, many participants mentioned the iatrogenic effect of other health professionals and previous beliefs of the patients, namely from the ones with more social power.

The novice group reported a higher frequency of some barriers than the non-novice group, and these differences were statistically significant. These activities were: lack of time allocated for treatment session (p=0.001); lack of knowledge to assess and address psychosocial aspects (p=0.047); lack of privacy in the clinic environment (p<0.001); difficulties in using education strategies (p=0.002). The perceived barriers to patient education by novice and non-novice physiotherapists are outlined in Table 7.

Table 7. Perceived barriers to patient education by novice and non-novice physiotherapists.

Variable		Agreement (%)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Difference p value - 2 tailed
Literacy of patient	Novices	5 (6.3 %)	12 (15.2 %)	10 (12.7 %)	44 (55.7 %)	8 (10.1 %)	0.830
	Non-novices	1 (3.0 %)	7 (21.2 %)	6 (18.2 %)	14 (42.4 %)	5 (15.2 %)	
Lack of trust or rapport between patient and therapist / Therapeutic relationship with patient	Novices	5 (6.3 %)	11 (13.9 %)	9 (11.4 %)	36 (45.6 %)	18 (22.8 %)	0.117
	Non-novices	3 (9.1 %)	7 (21.2 %)	6 (18.2 %)	12 (36.4 %)	5 (15.2 %)	
Emotional status of patient (anxiety, fear/apprehensiveness)	Novices	2 (2.5 %)	6 (7.6 %)	4 (5.1 %)	38 (48.1 %)	29 (36.7 %)	0.352
	Non-novices	0 (0.0 %)	3 (9.1 %)	2 (6.1 %)	20 (60.6 %)	8 (24.2 %)	
Non cooperative attitude of patient (ex: demotivation, rejection)	Novices	1 (1.3 %)	2 (2.5 %)	6 (7.6 %)	40 (50.6 %)	30 (38.0 %)	0.467
	Non-novices	0 (0.0 %)	1 (3.0 %)	5 (15.2 %)	16 (48.5 %)	11 (33.4 %)	
Patient not understanding Portuguese language	Novices	12 (15.2 %)	19 (24.1 %)	20 (25.3 %)	22 (27.8 %)	6 (7.6 %)	0.148
	Non-novices	8 (24.2 %)	7 (21.2 %)	11 (33.4 %)	7 (21.2 %)	0 (0.0 %)	
Patient assuming a passive role	Novices	1 (1.3 %)	5 (6.3 %)	6 (7.6 %)	41 (51.9 %)	26 (33.0 %)	0.759
	Non-novices	1 (3.0 %)	2 (6.1 %)	3 (9.1 %)	14 (42.4 %)	13 (39.4 %)	
My lack of knowledge on the topic about the clinical condition	Novices	5 (6.3 %)	21 (26.6 %)	17 (21.5 %)	25 (31.6 %)	11 (13.9 %)	0.117
	Non-novices	4 (12.1 %)	11 (33.4 %)	8 (24.2 %)	7 (21.2 %)	3 (9.1 %)	
Lack of time allocated for treatment session	Novices	12 (15.2 %)	15 (19.0 %)	12 (15.2 %)	19 (24.1 %)	21 (26.6 %)	0.001*
	Non-novices	8 (24.2 %)	13 (39.4 %)	6 (18.2 %)	5 (15.2 %)	1 (3.0 %)	
My lack of knowledge to assess and address psycosocial aspects	Novices	5 (6.3 %)	18 (22.3 %)	17 (21.5 %)	26 (33.0 %)	13 (16.5 %)	0.047*
	Non-novices	2 (6.1 %)	11 (33.4 %)	11 (33.4 %)	8 (24.2 %)	1 (3.0 %)	
Previous knowledge of patient on LBP	Novices	3 (3.8 %)	13 (16.5 %)	16 (20.3 %)	42 (53.2 %)	5 (6.3 %)	0.838
	Non-novices	0 (0.0 %)	4 (12.1 %)	12 (36.4 %)	15 (45.5 %)	2 (6.1 %)	
Lack of participation by family members	Novices	1 (1.3 %)	14 (17.7 %)	36 (45.6 %)	20 (25.3 %)	8 (10.1 %)	0.193
	Non-novices	1 (3.0 %)	9 (27.3 %)	13 (39.4 %)	10 (30.3 %)	0 (0.0 %)	
Lack of privacy in the clinic environment	Novices	13 (16.5 %)	24 (30.4 %)	21 (26.8 %)	10 (12.7 %)	11 (13.9 %)	<0.001*
	Non-novices	16 (48.5 %)	12 (36.4 %)	3 (9.1 %)	1 (3.0 %)	1 (3.0 %)	
My difficulties in using education strategies	Novices	6 (7.6 %)	24 (30.4 %)	11 (13.9 %)	30 (38.0 %)	8 (10.1 %)	0.002*
	Non-novices	8 (24.2 %)	12 (36.4 %)	6 (18.2 %)	7 (21.2 %)	0 (0.0 %)	

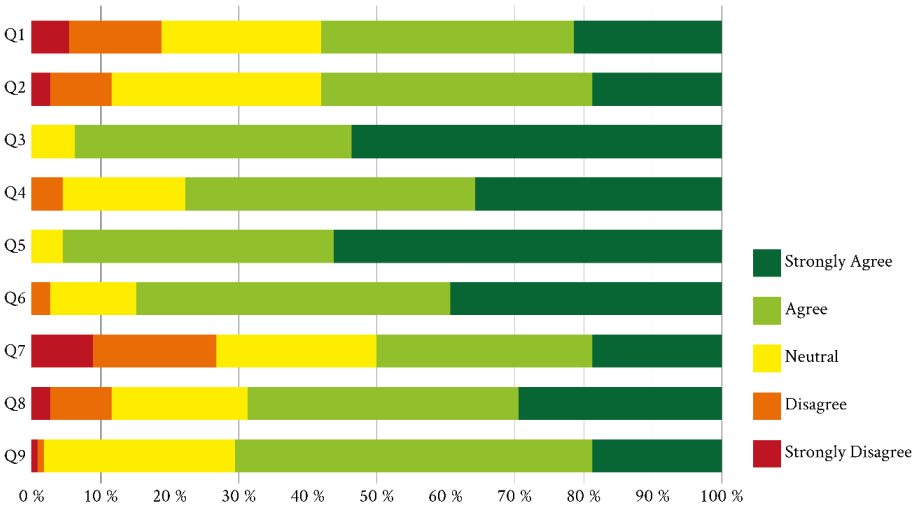
3.3.2 Perceived factors contributing to improve patient education skills

Four aspects were agreed by over 75% of participants as being a contributing factor to improve patient education: (Q3) interaction with colleagues (n=105, 93.7%); (Q4) training/experiences before physiotherapy studies (n=87, 77.7%); (Q5) personal experience prior to physiotherapist training (n=107, 95.6%); and, (Q6) post-grad academic/ university studies (n=95, 84.8%).

Only half of the participants reported (Q7) specific training on communication strategies for CLBP patients with a favourable opinion (Agree or Strongly Agree) (n=56, 50.1%).

In the open reply question regarding contributing factors to improve patient education there was only one comment: the usefulness of manual therapy was only perceived while accompanied with education and exercise. The perceived contributing factors to patient education skills are outlined in Graphic 7.

Graphic 7. Perceived Importance of Factors Contributing to Improve Patient Education



Q1. Personal experience with patients
Q2. Professional experience with patients
Q3. Interaction with colleagues
Q4. Training and/or experience before physiotherapy studies
Q5. Personal experience prior to physiotherapy training
Q6. Post-graduate Academic / University studies
Q7. Specific training on communication strategies for LBP patients
Q8. Reading of related published studies
Q9. Participating in conferences

There were no statistically significant differences between the novice and non-novice group regarding factors contributing to patient education skills. The perceived contributing factors to patient education skills by novice and non-novice physiotherapists are outlined in Table 8.

Table 8. Perceived importance of factors contributing to improve patient education by novice and non-novice physiotherapists.

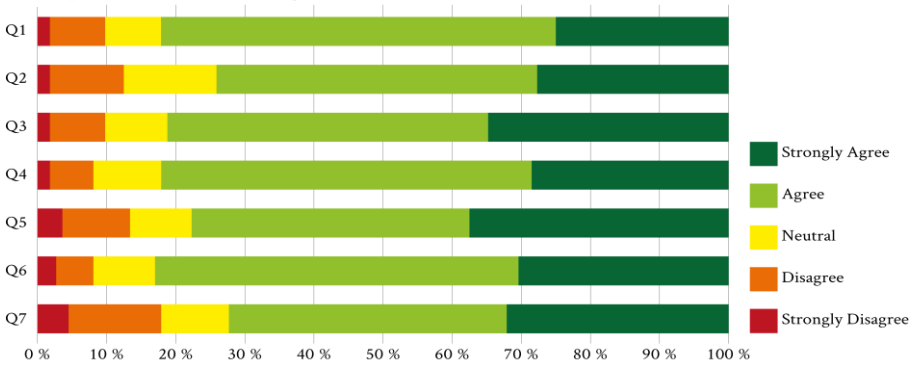
Variable		Agreement (%)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Difference p value - 2 tailed
Personal experience with patients	Novices	5 (6.3 %)	10 (12.7 %)	19 (24.1 %)	29 (36.7 %)	16 (20.3 %)	0.640
	Non-novices	1 (3.0 %)	5 (15.2 %)	7 (21.2 %)	12 (36.4 %)	8 (24.2 %)	
Professional experience with patients	Novices	1 (1.3 %)	6 (7.6 %)	27 (34.2 %)	32 (40.5 %)	13 (16.5 %)	0.804
	Non-novices	2 (6.1 %)	4 (12.1 %)	7 (21.2 %)	12 (36.4 %)	8 (24.2 %)	
Interation with colleagues	Novices	0 (0.0%)	0 (0.0%)	6 (7.6 %)	35 (44.3 %)	38 (48.1 %)	0.066
	Non-novices	0 (0.0%)	0 (0.0 %)	1 (3.0 %)	10 (30.3 %)	22 (66.7 %)	
Training and /or experience before physiotherapy studies	Novices	0 (0.0%)	3 (3.8 %)	11 (13.9 %)	35 (44.3 %)	30 (38.0 %)	0.160
	Non-novices	0 (0.0%)	2 (6.1 %)	9 (27.3 %)	12 (36.4 %)	10 (30.3 %)	
Personal experience prior to physiotherapy training	Novices	0 (0.0%)	0 (0.0 %)	2 (2.5 %)	29 (36.7 %)	48 (60.8 %)	0.095
	Non-novices	0 (0.0%)	0 (0.0 %)	3 (9.1 %)	15 (45.5 %)	15 (45.5 %)	
Post-graduate Academic /University studies	Novices	0 (0.0%)	1 (1.3 %)	10 (12.7 %)	36 (45.6 %)	32 (40.5 %)	0.543
	Non-novices	0 (0.0%)	2 (6.1 %)	4 (12.1 %)	15 (45.5 %)	12 (36.4 %)	
Specific training on communication strategies for LBP patients	Novices	9 (11.4 %)	13 (16.5 %)	17 (21.5 %)	29 (36.7 %)	11 (13.9 %)	0.358
	Non-novices	1 (3.0 %)	7 (21.2 %)	9 (27.3 %)	6 (18.2 %)	10 (30.3 %)	
Reading of related published studies	Novices	3 (3.8 %)	7 (8.9 %)	14 (17.7 %)	34 (43.0 %)	21 (26.6 %)	0.573
	Non-novices	0 (0.0%)	3 (9.1 %)	8 (24.2 %)	10 (30.3 %)	12 (36.4 %)	
Participating in conferences	Novices	1 (1.3 %)	0 (0.0%)	22 (27.8 %)	38 (48.1 %)	18 (22.8 %)	0.312
	Non-novices	0 (0.0%)	1 (3.0 %)	9 (27.3 %)	20 (60.6 %)	3 (9.1 %)	

3.3.3 Perceived learning needs for patient education

Four iems were agreed by over 80% of participants as being a learning necessity for patient education: (Q1) knowledge about pain neurophysiology (n=92, 82.1%); (Q3) strategies of education for a patient centred practice (n=91, 81.2%); (Q4) strategies of education for an evidence based practice (n=92, 82.1%); and, (Q6) skills to share decisions with patients (n=93, 83.1%).

From all items listed, there was none agreed less than 70% as a learning necessity, and there was no written suggestions in the open reply question. The perceived learning needs for patient education are outlined in Graphic 8.

Graphic 8. Perceived Learning Needs for Patient Education



Q1. Knowledge about pain neurophysiology
Q2. Knowledge about the impact of psycossocial aspects of LBP
Q3. Strategies of education for a patient centred base practice
Q4. Strategies of education for an evidence based practice
Q5. Communication skills
Q6. Skills to share decisions with patients
Q7. Knowledge of the recommendations for exercise

The non-novice group reported a higher frequency of some perceived learning needs than the novice group, from which knowledge about pain neurophysiology was the only difference that was statistically significant. The perceived learning needs for patient education by novice and non-novice physiotherapists are outlined in Table 9.

Table 9. Perceived learning needs for patient education by novice and non-novice physiotherapists.

Variable		Agreement (%)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Difference p value - 2 tailed
Knowledge about pain neurophysiology	Novices	0 (0.0 %)	6 (7.6 %)	4 (5.0 %)	47 (59.5 %)	22 (27.8 %)	0.048*
	Non-novices	2 (6.1 %)	3 (9.1 %)	5 (15.2 %)	17 (51.5 %)	6 (18.2 %)	
Knowledge about the impact of psycosocial aspects of LBP	Novices	1 (1.3 %)	6 (7.6 %)	11 (13.9 %)	37 (46.8 %)	24 (30.4 %)	0.147
	Non-novices	1 (3.0 %)	6 (18.2 %)	4 (12.1 %)	15 (45.5 %)	7 (21.2 %)	
Strategies of education for a patient centred based practice	Novices	2 (2.5 %)	5 (6.3 %)	6 (7.6 %)	34 (43.0 %)	32 (40.5 %)	0.068
	Non-novices	0 (0.0 %)	4 (12.1 %)	4 (12.1 %)	18 (54.5 %)	7 (21.2 %)	
Strategies of education for an evidence based practice	Novices	1 (1.3 %)	5 (6.3 %)	6 (7.6 %)	42 (53.2 %)	25 (31.6 %)	0.178
	Non-novices	1 (3.0 %)	2 (6.1 %)	5 (15.2 %)	18 (54.5 %)	7 (21.2 %)	
Communication skills	Novices	2 (2.5 %)	7 (8.9 %)	7 (8.9 %)	32 (40.5 %)	31 (39.2 %)	0.386
	Non-novices	2 (6.1 %)	4 (12.1 %)	3 (9.1 %)	13 (39.4 %)	11 (33.3 %)	
Skill to share decisions with patients	Novices	1 (1.3 %)	2 (2.5 %)	7 (8.9 %)	46 (58.2 %)	23 (29.1 %)	0.467
	Non-novices	2 (6.1 %)	4 (12.1 %)	3 (9.1 %)	13 (39.4 %)	11 (33.3 %)	
Knowledge of the recomendations for exercise	Novices	3 (3.8 %)	9 (11.4 %)	6 (7.6 %)	35 (44.3 %)	26 (32.9 %)	0.265
	Non-novices	2 (6.1 %)	6 (18.2 %)	5 (15.2 %)	10 (30.3 %)	10 (30.3 %)	

4. Discussion

4.1 Overall discussion

The purpose of this study was to characterize the self-reported clinical use of patient education by Portuguese physiotherapists who manage patients with CLBP. The study aimed to describe the frequency and perceived importance of patient education activities, as well as the frequency of education delivery and evaluation approaches. Additionally, the study aimed to research the perceived barriers to practice and the contributing factors and learning needs for patient education skills. Lastly, the study aimed to investigate the influence of physiotherapists experience with individuals with CLBP on the self-reported patient education practice. This study`s participants reported to use a range of patient education activities, and deemed a wide range of patient education activities to be important within their management of patients with CLBP.

The results of this study indicated that physiotherapists reported frequently providing information for an exercise programme and teaching self-management strategies, indicating a focus on patient self-management strategies outside of the clinic. This may indicate that physiotherapists are more focused on empowering patients toward self-management skills rather than focusing solely on the work during the session. This is consistent with existing literature, where self-management patient education explicitly expresses the value within health care for promoting an individual's ability to manage aspects of their own health (Hoeger Bement et al., 2014; Lorig & Holman, 2003; Robinson et al., 2016).

The results also showed a high frequency of asking and addressing the patients' concerns and general promotion of health. Although the findings suggested that Portuguese physiotherapists address patients concerns, it is not possible to say that they address learning needs, as consistent with patient-centred practice (Ndosi et al., 2016). Such an approach to education takes into account the patient's desire for information and considers the best way to deliver it. Some authors have described with detail the required activities by health professionals in order to achieve patient-centred education. These include assessing the educational needs of the patients, as well as their perceptions and concerns, and facilitating an environment that is conductive for patients to express their needs (Friberg et al., 2012; Ndosi et al., 2016). It has been specified that including patients` learning needs as a priority in their treatment is a key aspect to effective patient

education as it addresses more precisely their contexts and experiences, allowing the content to be tailored (Redman, 2004).

The higher reported frequency of using individual education approaches as opposed to group discussion, as well as personalised pamphlets by physiotherapists may suggest that physiotherapists place a deeper emphasis on personalised approaches to patient education. This may also indicate a patient-centred approach, but it also may indicate that group delivery of physiotherapy is less frequent than individually delivered physiotherapy in Portugal. Another possible reason is the funding models used for physiotherapy, which are not designed to support group based physiotherapy sessions. This finding may also indicate a lack of training and/or confidence to implement group interventions, despite group approaches being potentially as beneficial and patient-centred as individual approaches (O'Keeffe et al., 2017).

There is increasing evidence indicating that many patients remain confused about their health care plans after being discharged from hospital care, and some of these patients do not recognize their lack of comprehension (Zavala & Shaffer, 2011). Previous research has also found that information that was patient-centred not only increased patients' understanding of their health needs but supported self-management and improved health outcomes for adults with chronic illness (Coulter, 2012). Amongst others, one possible patient-centred approach is the teach-back method. The teach-back method, a technique for verifying patients' understanding of their health information, has been recommended by the Agency for Healthcare Research and Quality (AHRQ) and the Institute for Healthcare Improvement (IHI) as a strategy for assisting in addressing health literacy. Patients are asked to repeat the instructions they receive from their health care professionals (Hersh et al., 2015). Seeking patient understanding of educational content through asking the patient to repeat information is recommended to address potential literacy issues, ensure understanding of self-management and promote recall (Yen & Leasure, 2019). Our results demonstrated that over 50% of the physiotherapists, who participated in this study, reported frequently or always using a teach-back approach (n=65, 58%), indicating practice according to recommendations.

The study results have demonstrated a reported frequency and perceived importance of providing information on diagnosis of CLBP lower than expected according to current guidelines. This result may suggest that either the participants were not familiar with current guidelines or that despite knowing, they were unable to put them

to practice. Clinical guidelines (Foster et al., 2018; Hartvigsen et al., 2018; National Institute for Health and Care Excellence, 2016; O'Sullivan et al., 2017) recommend that patients should be given education about the nature of pain or radicular pain, reassurance that they do not have a serious disease and that symptoms will improve over time, encouragement to avoid bed rest, stay active, and continue with usual activities, including work. This may also suggest that perhaps there needs to be more training and support for physiotherapists to practice this according to recommendations.

Current clinical guidelines also indicate that physiotherapists should assess and address psychological factors relating to chronic pain. The results of this study showed a high perceived importance, but lower reported frequency of this item. This means that the participants recognised and placed a high value on assessing and addressing psychological factors relating to chronic pain, but did not report doing it as expected from its perceived importance. This difference between perceived importance and reported frequency seems to be lessened with experience, since the non-novice group showed a tendency to report higher frequency than novice group. Likewise, counseling about stress, emotional problems or psychological support, and advising on social support, revealed to be considered important by the majority, but had lower frequencies than other similar research (Forbes et al., 2017; Sanders et al., 2013). This may indicate that this study`s participants recognised its importance but likewise may lack the skills to do it. In the same way, this may also indicate that training of physiotherapists may not focus on identifying and managing these problems, as well as knowing when and where to refer patients. Further research regarding the training of physiotherapists is needed. Another hypothesis is based on the intention-practice gap, which represents the difference between one's intention and respective outcome. Literature assessing the correlation of intention and behaviour in both health professionals and non-health professionals is evident, and although the considerably smaller literature regarding health professionals making it harder to draw conclusions, it provides encouragement that there is a predictable relationship between the intentions of a health professional and their subsequent behaviour. However, this relationship corresponds only to a medium to large effect (Eccles et al., 2006).

This study`s findings showed that only a small percentage of participants (n=41 36.6%) reported including education on >81% of sessions. This contrasts with current guidelines, as they recommend education and active treatments as opposed to passive

ones. Amongst the active approaches, patient education aims to change someone's understanding of what pain actually is, and what biological processes are thought to underpin it. It refers to both a theoretical framework from which to approach pain treatment and also the approach itself (Moseley & Butler, 2015).

The findings from this study demonstrated significantly lower frequencies of explaining pain neurophysiology than presented in similar studies (Forbes et al., 2017; Sanders et al., 2013), especially when this aspect was considered important by the majority. This finding is interesting as CLBP frequently features changes in pain neurophysiology (Clarke et al., 2011). This may suggest that the physiotherapists, who participated in this study, realised the importance of explaining pain, but may lack the skills to do it. This was also observed with the novices having a tendency to report lack of this knowledge more often than non-novices. Additionally, more years of experience showed a positive relation with higher frequency of explaining pain neurophysiology. This might suggest the need for more training for novice physiotherapists in this area. On the other hand, this finding can be conditioned by other factors such as time of consultation, since patient education is time consuming and funding might not provide the means to deliver it.

Education should involve information about the prognosis of the condition (Foster et al., 2018). Despite that the overall reported frequency was lower than expected (62.5% said to do it frequently or always), the novice group showed a tendency to report it less frequently than non-novices. This may indicate that physiotherapists with more experience may be more aware of the value of this educational component, or that more experienced physiotherapists are older, and therefore had more time to gain experience in providing prognosis (Little et al., 2001; Sanders et al., 2013).

Assessing perceived barriers was important to build a more complete picture of the physiotherapists' perspectives, understanding what impacts their effective use of paitent education practice. In this study, over 80% of the participants perceived barriers relating to the patient: the emotional status of patient (anxiety, fear/ apprehensiveness) (n=95, 84.8%); non-cooperative attitudes of the patient (n=97, 86.6%); and, the patient assuming a passive role (n=94, 83.9%). This implies that the majority of physiotherapists perceived barriers to be patient related rather than due to their own practice or skills. The difference between practice and theoretical guidelines might be conditioned by physiotherapist's own beliefs, such as putting the responsibility on the patient. To analyse

this, the questionnaire had a section regarding Barriers (external to the physiotherapist), which had high perceived importance, as emotional status of patient, or non cooperative attitude of patient, or even patient assuming a passive role.

On the other hand, assessing contributing factors to the development of patient education was also important to have a better grasp of the physiotherapists' perspectives and clinical practice. One surprising result regarding contributing factors was specific training on communication strategies for CLBP where only half of the participants (56/112, 50.1%) reported with a favourable opinion (agree or strongly agree). This was unexpected when there are strong recommendations for improving communication skills in order to improve patient education delivery. Another interesting finding was the small percentage of participants who reported using links to websites or other online content "frequently" or "always" (14/79 17.7%). It should be considered this project was developed during the pandemic of covid19 and (especially in these times) the use of online content may be more relevant and beneficial.

In this study there were some results that differ from guidelines, which may indicate unfamiliarity or non-compliance with guidelines. The results from Gil and colleagues (Gil et al., 2009) shared this tendency, where the most frequent management approaches were manual therapy and electrotherapy. Sá and colleagues reported similar findings in their study where it was concluded that Portuguese physiotherapists were not acting accordingly with the guidelines for LBP (Sá et al., 2018). There is a need to investigate which, and if non-compliance with familiarity is confirmed, further research is needed to assert why this is happening.

4.2 Limitations

It is recognised that the methodology used in this study has some limitations. The self-reported data may not reflect true clinical practice. This self-report may have led to misunderstanding of the questions and hence incorrect completion of the questionnaire since no researcher was with the participants at the time of response. Another bias that one could find is socially desirable responses, where participants could answer according to what is expected instead of their reality. Additionally, the answers depend on the participants' memory, where it is unlikely that one remembers everything exactly as it

has happened. Lastly, the physiotherapists that participated may be those with particular interest in the area of patient education, whereas those who have less interest in this topic may have been less likely to participate.

To try to minimize the risk of misunderstandings, the questionnaire was submitted to a pilot study before the final version, and it was provided the researcher's email to address any questions that may arise. The social-desirable bias was minimized by making clear to the participants that their answers would remain completely anonymous.

Finally, the small sample and the recruitment by a method of convenience should also be considered as a potential limitation.

4.3 Implications

This study was a pioneer in the area of patient education in Portugal, providing a detailed analysis of the reported patient education used by Portuguese physiotherapists. This work aimed to provide a solid step to deepen the understanding of the perceptions of physiotherapists relating to patient education practice and the management of CLBP.

This study may impact the clinical practice promoting a pillar to reflect upon physiotherapists' patient education, whether in their approach to patients or in their curricula. Results of this study may change the perspective of academic curriculum for physiotherapists in Portugal. This change should aim to integrate more training in patient education activities, as this competence and specialist training are lacking in health professionals such as physiotherapists (Caeiro, 2016; Sanders et al., 2013).

These results allow us to consider the potential difficulties experienced by physiotherapists when implementing patient education, and how to possibly overcome them. This should bring physiotherapists closer to the more recent guidelines, since these results indicate that physiotherapists may not be consistently following the guidelines.

4.4 Future perspectives

Considering that guidelines are not being wholly followed, for future research it is recommended that the cause for this phenomenon should be explored, in order to minimize the difference between theory and practice.

In order to achieve this it is advised to firstly investigate if the physiotherapists know the guidelines and if they have interest in altering their modus operandi.

Furthermore, considering the differences found about novices and non-novices, further research on novices' self-efficacy preparedness for patient education would be of interest in future research.

5. Conclusion

This study suggested that the practice of Portuguese physiotherapists is heterogeneous, and not completely accordingly to the guidelines regarding patient education. It also demonstrated the difference between novice and non-novice physiotherapists, where the less experienced seem to have more difficulties with patient education approaches.

Despite the limitations of this study, the results may contribute to physiotherapy practice. The characterization of the practice is a necessary starting point if we are to consider any change, by identifying problems in order to address them.

As this study aimed to investigate the perception and use of patient education interventions by physiotherapists in Portugal in patients with CLBP, the objectives were partially fulfilled, since this work cannot represent the whole of Portuguese physiotherapists. Nonetheless, this study was the first to investigate in such depth this aspect of clinical practice in Portugal, and may prompt further research, either nationally or abroad.

This study served to realise how physiotherapy practice differs from theoretical guidelines on CLBP. Physiotherapists seem to have quite distinct ways of working, most of them not completely following the guidelines regarding patient education. Additionally, this study revealed that the majority of physiotherapists identify barriers to patient education practice, particularly factors relating to the patient. This may indicate that physiotherapists may need further training or support to address or overcome these perceived barriers.

The results of this study indicated differences between novice and non-novice physiotherapists. The novice group tended to show less actions according to the guidelines for LBP. On the other hand, physiotherapists with more years of experience tended to provide more patient-centred approaches to education, such as explaining pain neurophysiology and giving information about the prognosis of the condition. Despite these differences, the answers of both groups varied widely revealing heterogeneity of action, both between novice and non-novice physiotherapists.

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Appendices

Appendix 1. Ethics committee approval

IPS Instituto Politécnico de Setúbal
Escola Superior de Saúde

COMISSÃO ESPECIALIZADA DE ÉTICA EM INVESTIGAÇÃO

Parecer 54/AM/2020

SOLICITAÇÃO

Pedido de parecer à Comissão Especializada de Ética para Investigação da ESS-IPS por parte do mestrando Tiago Balluchi relativamente ao projecto *Caracterização da prática e percepção dos fisioterapeutas acerca da educação enquanto modalidade terapêutica no tratamento de indivíduos com lombalgia crónica*, realizado no âmbito do mestrado em fisioterapia – Ramo de condições músculo-esquelética (MF-RME), leccionado em parceria com a Escola Superior de Saúde do Instituto Politécnico de Setúbal (ESS-IPS) e com a Faculdade de Ciências Médicas (FCM) e Escola Nacional de Saúde Pública (ENSP) da Universidade Nova de Lisboa (UNL). Não foi entregue nenhuma solicitação

DOCUMENTAL

1. Sinopse do estudo - introdução, objetivos, cronograma, participantes, metodologia, bibliografia e anexos:
   1.1. Carta explicativa
   1.2. Consentimento informado
   1.3. Questionário de recolha de dados
   1.4. Cronograma

ANÁLISE E PARECER

O estudo "*Caracterização da prática e percepção dos fisioterapeutas acerca da educação enquanto modalidade terapêutica no tratamento de indivíduos com lombalgia crónica*" tem:

1. O objetivo de caracterizar a utilização de educação enquanto modalidade terapêutica na prática clínica dos fisioterapeutas.
2. Os participantes são fisioterapeutas que trabalham em Portugal e que no último ano tenham acompanhado utentes dos 18-65 anos com lombalgia crónica
3. O recrutamento será por propagação geométrica iniciada pelos antigos e actuais estudantes do MF-RME da ESS-IPS, FCM e ENSP, assim como divulgação no Grupo de interesse de

músculo-esquelética da Associação Portuguesa de Fisioterapeutas. Com base nesta divulgação, os participantes são contatados via e-mail, sendo-lhes apresentado uma descrição resumida do estudo, carta convite, informação dos investigadores e consentimento informado. O preenchimento do questionário será numa plataforma *online*.

4. Método de colheita de dados através de questionário será numa plataforma *online*.
5. Formulário de consentimento evidencia os aspetos éticos - informação detalhada aos participantes, incluindo duração estimada do preenchimento do questionário (ie., 10 -15 mim); assegurado o direito ao anonimato e à confidencialidade da informação prestada; direito de abandonar; e recurso ao contacto dos investigadores.

Com base na análise efectuada, considera-se que o estudo preenche os requisitos éticos, com preocupações relativas à proteção dos direitos dos participantes do estudo, pelo que se emite parecer favorável à sua realização e protecção de dados. Por último, sugere-se que na próxima vez processo seja completo na sua instrução, ie., com o requerimento de parecer.

27 março 2020

P'la CEEI

Lucília Nunes

Appendix 2. Questionnaire – English version

Characterization of physiotherapists practice and perceptions regarding patient education in chronic low back pain patients

Welcoming message:

My name is Tiago de Carvalho Balluchi, I'm a physiotherapist and student of the Master in Physiotherapy in Musculoskeletal Conditions from Health School of Setúbal's Polytechnic Institute, in partnership with Nova Medical School/Faculdade de Ciências Médicas (NMS/FCM) and National School of Public Health (ENSP) of New University of Lisbon (UNL).

I'm developing a study, under clinical guidance of Professor Dr Carmen Caeiro (PhD) and co-guidance of Dr Roma Forbes (PhD), which aims to characterize the (self-reported) practice of physiotherapists working with patients with chronic low back pain in Portugal.

Your participation in this study is requested only by filling this questionnaire.

This questionnaire is directed to physiotherapists that practice in Musculoskeletal Conditions, specifically people with chronic low back pain, with age ranging from 18 to 65 years old.

If you don't work with patients with chronic low back pain, or if **all of your patients have under 18 or over 65 years old,** please **don't fill** this questionnaire.

Before starting, we ask for your informed consent.

Informed Consent

Dear Colleague,

You're invited to participate in a study developed by physiotherapist Tiago de Carvalho Balluchi, under clinical guidance of Professor Carmen Caeiro and co-guidance of Dr Roma Forbes, under the project of the master's thesis of the 2nd year of the Master in Physiotherapy in Musculoskeletal Conditions from Health School of Setúbal's Polytechnic Institute, in partnership with Nova Medical School/Faculdade de Ciências

Médicas (NMS/FCM) and National School of Public Health (ENSP) of New University of Lisbon (UNL).

The objective of this research is to characterize the use of education as a therapeutic intervention in the clinical practice of Portuguese physiotherapists, namely regarding i) which are the contents usually discussed, ii) which strategies, iii) the frequency of this intervention, iv) the use alone / in combination with other interventions, v) the formal and informal education deemed needed to this intervention, vi) the learning necessities identified and vii) identification of barriers and contributing factors to the implementation of a evidence practice.

You've been selected to participate in this study because you're a physiotherapist working in Portugal, whether in the public or private sector, working with people with chronic low back pain, with age equal or over 18 and equal and under 65 years old.

Your participation in this study is voluntary and is only asked of you to fill this questionnaire, with an estimated time of response of 10 minutes. You can abandon this questionnaire at any time, without any negative consequences. We focus that the platform **automatically saves** your answers to the different sections, allowing the **participants to pause the questionnaire and resume later**, whiting the established time range.

It will be used an identity coding system, developed automatically by the online platform, that will allow the study to function in full anonymity. **The participants will never be related with their answers.** The data collected with be presented in the presentation of the project of the project of the master's thesis, but never in an individual fashion. The data collected will be stored in a safe location – external drive (offline), and to which only the researchers will have access. Once presented the original data will be destroyed after 5 years.

☐ I have acknowledge all the above and agree to participate in the study

☐ I have read and understood everything above and had the chance to clarify any question with the researchers

Section I – Participants characterization

During the questionnaire, you will find the word "education". Next, we present a definition to help clarify the concept.

"a planned learning experience using a combination of methods such as teaching, counseling and behaviour modification techniques which influence patients' knowledge and health behavior" – Edward Bartlett 1983

1. Gender: ☐Female ☐Male

2. Age: _____ (years)

3. What are your physiotherapy qualification(s)? (check your highest degree)
☐Bachelor in Physiotherapy
☐Graduation in Physiotherapy
☐Master's in Physiotherapy
☐Master's in a related area
☐PhD in Physiotherapy
☐PhD in a related area

3.1. If you're replied with "Master's in a related area", please specify:
_____

3.2. If you're replied with "PhD in a related area", please specify:
_____

4. Where did you had your physiotherapist training?
☐Instituto Politécnico de Castelo Branco – Escola Superior de Saúde Dr. Lopes Dias
☐Instituto Politécnico de Coimbra – Escola Superior de Tecnologia da Saúde de Coimbra
☐Instituto Politécnico de Leiria – Escola Superior de Saúde
☐Instituto Politécnico de Lisboa – Escola Superior de Tecnologia da Saúde de Lisboa
☐Instituto Politécnico de Setúbal – Escola Superior de Saúde
☐Instituto Politécnico do Porto – Escola Superior de Saúde
☐Universidade de Aveiro – Escola Superior de Saúde de Aveiro
☐CESPU – Instituto Politécnico de Saúde do Norte – Escola Superior de Saúde do Vale do Ave
☐CESPU – Instituto Politécnico de Saúde do Norte – Escola Superior de Saúde do Vale do Sousa
☐Escola Superior de Saúde Atlântica
☐Escola Superior de Saúde da Cruz Vermelha
☐Escola Superior de Saúde de Santa Maria

☐ Escola Superior de Saúde de Alcoitão
☐ Escola Superior de Saúde Egas Moniz
☐ Escola Superior de Saúde Jean Piaget – Algarve
☐ Escola Superior de Saúde Jean Piaget de Vila Nova de Gaia
☐ Escola Superior de Saúde Jean Piaget de Viseu
☐ Instituto Superior de Saúde do Alto Ave
☐ Universidade Fernando Pessoa – Escola Superior de Saúde
☐ Other

4.1 If you've selected "Other", identify which:
_____

5. Were there, in your base training, taught specific contents that contributed to the development of your ability to use patient education with chronic low back pain? If yes, which?
☐ Pain neurophysiology
☐ Assessment and intervention on psychosocial aspects
☐ Comunication strategies
☐ Health education models
☐ Building of educational materials (ex.: pamphlets)
☐ Strategies to implement exercise.
☐ Other(s)

5.1 If you've selected "Other(s)", identify which:
_____

6. Did you do any post-grad training aiming to develop patient education for low back pain patients?
☐ Yes
☐ No

6.1. If you've selected "Yes", identify which:
_____

7. How many years of professional experience do you have?
☐ Under 3 years
☐ 3 – 5 years
☐ 6 – 10 years
☐ Over 10 years

8. How many years of professional experience with chronic low back pain do you have?
☐ Under 3 years
☐ 3 – 5 years
☐ 6 – 10 years
☐ Over 10 years

9. Where do you work? (select all that apply)
☐ Hospital

☐ Clinic
☐ Private practice
☐ Home /domicilar setting
☐ Other(s): _____

10. In which sector do you work?
☐ Public
☐ Private
☐ Convencionate
☐ Mist (public-private partnership)

10.1 If you've selected more than one work place, please specify in which you work the most:
☐ Public
☐ Private
☐ Convencionate
☐ Mist (public-private partnership)

11. In which context do you work?
If you have selected more that one work place, please answer considering the one you work the most.
☐ Alone
☐ In team with other physiotherapists
☐ In multidisciplinary team
☐ Other, which? _____

Section II – Practice Characterization – Patient education

If you work in more than one place, please fill this section regarding the sector you work predominantly.

1. On average, **how many sessions** does your intervention plans for chronic low back patient have?

- ☐ 1-4 sessions
- ☐ 5-8 sessions
- ☐ 9-12 sessions
- ☐ 13-16 sessions
- ☐ 17-20 sessions
- ☐ Over 20 sessions

2. On average, what's the **percentage of your sessions** for chronic low back patients **include patient education**?

- ☐ Under 20% of sessions
- ☐ 21% to 40% of sessions
- ☐ 41% to 60% of sessions
- ☐ 61% to 80% of sessions
- ☐ 81% to 100% of sessions

3. How **frequent** do you use the following **patient education activities**:

	Never	Rarely	Sometimes	Very often	Always
Providing verbal or written instruction needed for basic exercise programme					
Providing information about the patient's condition or diagnosis					
Advice or teaching self-management strategies					
Advice or teaching correct posture and movement (for the patient)					
Asking and replying to the patient's concerns					
Providing information about the patient's prognosis					
Advice or strategies to perform activities of daily living					
Advice or teaching activity pacing					
Exploring the patient's ideas and perceptions					
General health promotion					
Teaching problem-solving strategies					
Explaining pain neurophysiology/mind-body description of pain					
Advice on use of assistive devices or equipment (example: adapted seat; device to monitor posture and/or physical activity; tape)					
Counseling about stress / emotional problems or necessary psychological support					
Advice on social support					

4. How **important** do you think the following **patient education activities** are:

	Not important	Slightly important	Moderately important	Important	Very important
Providing verbal or written instruction needed for basic exercise programme					
Providing information about the patient's condition or diagnosis					
Advice or teaching self-management strategies					
Advice or teaching correct posture and movement (for the patient)					
Asking and replying to the patient's concerns					
Providing information about the patient's prognosis					
Advice or strategies to perform activities of daily living					
Advice or teaching activity pacing					
Exploring the patient's ideas and perceptions					
General health promotion					
Teaching problem-solving strategies					
Explaining pain neurophysiology/mind-body description of pain					
Advice on use of assistive devices or equipment (example: adapted seat; device to monitor posture and/or physical activity; tape)					
Counseling about stress / emotional problems or necessary psychological support					
Advice on social support					

5. How frequent do you use the following **education delivery** approaches?

	Never	Rarely	Sometimes	Very often	Always
Physical demonstration of exercise, movement, posture or activity					
Anatomy models or pictures					
Photography or video					
Generic handouts/pamphlets					
Personalised handouts					
Links to websites or other online content					
Feedback, verbal, tactile, using information of devices (example: smartphones, stabilizer) or biofeedback (ex: electromyography)					
One-to-one discussion					
Formal group education activities					

6. How frequent do you use the following **evaluation of education** approaches?

	Never	Rarely	Sometimes	Very often	Always
Ask the patient to demonstrate					
Interpret signals from the patient					
Use of questionnaires					
Objective measures or standards					
Ask the patient to repeat or discuss content in their own words					
Ask family members or caregivers					
Analyse patient tasks through video					

7. On average, how much time do you dedicate **on the first session** to educational activities with chronic low back patients?

☐ Under 5 minutes
☐ 5 – 15 minutes
☐ 15 – 30 minutes
☐ 30 – 45 minutes
☐ Over 45 minutes

8. On average, how much time do you dedicate **on following sessions** to educational activities with chronic low back patients?

☐ Under 5 minutes
☐ 5 – 15 minutes
☐ 15 – 30 minutes
☐ 30 – 45 minutes
☐ Over 45 minutes

Section III – Identification of barriers,
contributing factors and learning necessities

If you work in more than one place, please fill this section regarding the sector you work predominantly.

1 How would you classify the following **barriers** to patient education that apply to yourself:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Literacy of patient					
Lack of trust or rapport between patient and therapist / Therapeutic relationship with patient					
Emotional status of patient (anxiety, fear/apprehensiveness)					
Non cooperative attitude of patient (ex: demotivation, rejection)					
Patient not understanding Portuguese language					
Patient assuming a passive role					
My lack of knowledge of the topic about the clinical condition					
Lack of time allocated for treatment session					
My lack of knowledge to assess and address psychosocial aspects					
Previous knowledge of patient on low back pain					
Lack of participation by family members					
Lack of privacy in clinic environment					
My difficulties in using education strategies					

1.1 If deemed necessary, identify other(s):

_____

2 How would you classify the following **factors contributing** to the development of skills that facilitate patient education with chronic low back pain patients:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Personal experience with patients'					
Professional experience with patients'					
Interaction with colleagues					
Training and/or experience before physiotherapy studies					
Personal experience prior to physiotherapist training					
Post-graduate Academic/University studies					
Specific training on communication strategies for low back pain patients					
Reading of related published articles					
Participation on conferences					

2.1 If deemed necessary, identify other(s):

_____

3 Identify which of the following aspects correspond to your **learning necessities** regarding patient education for chronic low back pain patients:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Knowledge about pain neurophysiology					
Knowledge about the impact of psychosocial aspects of low back pain					
Strategies of education for a patient centred practice					
Strategies of education for an evidence based practice					
Communication skills					
Skills to share decisions with patients					
Knowledge of the recommendations for exercise					

3.1 If deemed necessary, identify other(s):

_____

Appendix 3. Questionnaire – Portuguese version

Caracterização da prática e percepção dos fisioterapeutas acerca da educação enquanto modalidade terapêutica no tratamento de indivíduos com lombalgia crónica

Mensagem de Boas Vindas:

O meu nome é Tiago de Carvalho Balluchi e sou fisioterapeuta e estudante do 2º ano do Mestrado em Fisioterapia nas Condições Músculo-Esqueléticas, lecionado pela Escola Superior de Saúde do Instituto Politécnico de Setúbal em parceria com a Nova Medical School/Faculdade de Ciências Médicas e com a Escola Nacional de Saúde Pública da Universidade Nova de Lisboa.

Neste momento estou a realizar um estudo, sob orientação científica do professoa doutora Carmen Caeiro e co-orientação da professora doutora Roma Forbes, cuja finalidade é caracterizar a prática e percepção dos fisioterapeutas acerca da educação enquanto modalidade terapêutica no tratamento de indivíduos com lombalgia crónica.

A sua participação neste estudo é apenas solicitada através do preenchimento deste questionário.

Este questionário é dirigido a fisioterapeutas que exerçam prática clínica atual na área musculo-esquelética, nomeadamente na intervenção em utentes com lombalgia crónica, com idade superior a 18 anos e inferior a 65 anos.

Se não intervier em utentes com lombalgia crónica, ou se **todos os utentes** com lombalgia que acompanha **têm idade inferior a 18 anos ou superior a 65 anos**, por favor **não preencha** este questionário.

Previamente ao preenchimento deste instrumento, solicitamos o seu consentimento informado.

Formulário de Consentimento Informado

Caro(a) colega,

É convidado(a) a participar num estudo realizado pelo Fisioterapeuta Tiago de Carvalho Balluchi, sob orientação científica da Professora doutora Carmen Caeiro, enquadrado na Unidade Curricular de Trabalho de Projeto do 2º ano do Curso de Mestrado em Fisioterapia – Ramo de Condições Músculo-Esqueléticas, lecionado em parceria pela Escola Superior de Saúde do Instituto Politécnico de Setúbal com a Nova Medical School/Faculdade de Ciências Médicas e Escola Nacional de Saúde Publica da Universidade Nova de Lisboa.

O objetivo deste estudo é caracterizar a prática (autoreportada) dos fisioterapeutas em utentes com dor lombar em Portugal, i) os conteúdos habitualmente abordados, ii) as estratégias utilizadas (didáticas ou centradas no utente), iii) a frequência da utilização desta modalidade terapêutica, iv) a utilização isolada/ combinação com outras modalidades de intervenção, v) a formação base e/ou formação complementar considerada importante para a utilização deste modalidade de intervenção, vi) as necessidades de aprendizagem identificadas, vii) identificar as barreiras e elementos facilitadores para a implementação de uma prática informada pela evidência.

Foi selecionado(a) para participar neste estudo por ser um(a) fisioterapeuta que trabalha em Portugal, seja no setor público e/ou no setor privado, e acompanha utentes com lombalgia crónica com idade igual ou superior a 18 anos e inferior a 65 anos.

A sua participação neste estudo é voluntária e é-lhe apenas solicitado que complete este questionário, com um tempo de preenchimento estimado de 10 minutos. Pode abandonar o preenchimento do mesmo a qualquer momento, sem consequências negativas. Salienta-se também que a plataforma **guarda automaticamente** as respostas às diferentes secções, podendo os participantes **parar o preenchimento do questionário** e **continuar mais tarde**, desde que no prazo estabelecido.

Será utilizado um sistema de codificação da sua identidade desenvolvido automaticamente pela plataforma do questionário, que permitirá que o estudo funcione em anonimato. **Os participantes nunca serão relacionados com as suas respostas.** Os dados serão apresentadas no âmbito da apresentação do Trabalho de Projeto do Mestrado em Fisioterapia, mas nunca de forma individual. Os dados serão guardados num local seguro – disco externo (offline), e ao qual apenas os elementos da equipa de investigação terão acesso. Uma vez apresentados os resultados, os dados originais serão destruídos ao fim de 5 anos.

☐ Declaro que aceito participar nesta investigação, com a salvaguarda da confidencialidade e anonimato e sem prejuízo pessoal de cariz ético ou moral.

☐ Declaro que li e compreendi a informação facultada na ficha informativa e que pude esclarecer todas as dúvidas com os investigadores.

Secção I – Caracterização dos Fisioterapeutas

Ao longo do questionário será falado em "Educação". De seguida apresentamos uma definição para clarificar o conceito.

"uma experiência de apredizagem planeada, que usa uma combinação de métodos como ensino, aconselhamento, e técnicas de modificação comportamental que influenciam os utentes" – Edward Bartlett 1983

1. Género: ☐ Feminino ☐ Masculino

2. Idade: _____ (anos)

3. Quais as suas qualificações académicas? (*Assinale o grau mais elevado*)

☐ Bacharelato em Fisioterapia
☐ Licenciatura em Fisioterapia
☐ Mestre em Fisioterapia
☐ Mestre numa área relacionada
☐ Doutorado em Fisioterapia
☐ Doutorado numa área relacionada

3.1. Se respondeu "Mestre numa área relacionada", indique qual:_____

3.2. Se respondeu "Doutorado numa área relacionada", indique qual:_____

4. Qual a sua escola de formação base?

☐ Instituto Politécnico de Castelo Branco – Escola Superior de Saúde Dr. Lopes Dias

☐ Instituto Politécnico de Coimbra – Escola Superior de Tecnologia da Saúde de Coimbra
☐ Instituto Politécnico de Leiria – Escola Superior de Saúde
☐ Instituto Politécnico de Lisboa – Escola Superior de Tecnologia da Saúde de Lisboa
☐ Instituto Politécnico de Setúbal – Escola Superior de Saúde
☐ Instituto Politécnico do Porto – Escola Superior de Saúde
☐ Universidade de Aveiro – Escola Superior de Saúde de Aveiro
☐ CESPU – Instituto Politécnico de Saúde do Norte – Escola Superior de Saúde do Vale do Ave
☐ CESPU – Instituto Politécnico de Saúde do Norte – Escola Superior de Saúde do Vale do Sousa
☐ Escola Superior de Saúde Atlântica
☐ Escola Superior de Saúde da Cruz Vermelha
☐ Escola Superior de Saúde de Santa Maria
☐ Escola Superior de Saúde de Alcoitão
☐ Escola Superior de Saúde Egas Moniz
☐ Escola Superior de Saúde Jean Piaget – Algarve
☐ Escola Superior de Saúde Jean Piaget de Vila Nova de Gaia
☐ Escola Superior de Saúde Jean Piaget de Viseu
☐ Instituto Superior de Saúde do Alto Ave
☐ Universidade Fernando Pessoa – Escola Superior de Saúde
☐ Outra

4.1 Se assinalou "Outra", identifique qual:
_____

5. Na sua formação base foram lecionados conteúdos específicos que contribuíram para o desenvolvimento de competências para a utilização de educação enquanto modalidade terapêutica para tratamento de utentes com lombalgia crónica? Se sim, assinale quais?

☐ Neurofisiologia da dor

☐ Avaliação e intervenção sobre os aspectos psicossociais

☐ Estratégias de comunicação

☐ Modelos de educação para a saúde

☐ Princípios para construção de materiais educativos (ex.: panfletos)

☐ Estratégias para implementação de sessões de exercício

☐ Outro(s)

5.1 Se assinalou "Outro(s)", identifique quais:
_____

6. Realizou formação pós-graduada na área de condições músculo-esqueléticas com vista ao desenvolvimento de competências para educação de utentes com lombalgia crónica?

☐ Sim

☐ Não

6.1. Se "Sim", indique quais:
_____

7. Quantos anos de experiência profissional tem?
☐ Menos de 3 anos
☐ 3 – 5 anos
☐ 6 – 10 anos
☐ Mais de 10 anos

8. Quantos anos de experiência de prática clínica tem com utentes com lombalgia crónica?
☐ Menos de 3 anos
☐ 3 – 5 anos
☐ 6 – 10 anos
☐ Mais de 10 anos

9. Qual(ais) o(s) local(ais) de prática clínica onde exerce? (selecione todas as que se apliquem)

☐ Hospital

☐ Clínica de fisioterapia

☐ Gabinete privado

☐ Domicílios

☐ Outro(s): _____

10. Qual(ais) o(s) sector(es) onde exerce?

☐ Público

☐ Privado

☐ Convencionado

☐ Misto (parceria público-privado)

10.1 Se selecionou mais que um local / sector de trabalho, por favor indique em qual exerce predominantemente:

☐ Público

☐ Privado

☐ Convencionado

☐ Misto (parceria público-privado)

11. Qual o contexto onde exerce?

Se selecionou mais do que um sector de trabalho, por favor responda a esta pergunta tendo em conta o sector em que exerce predominantemente.

☐ Sozinho

☐ Em equipa com outros fisioterapeutas

☐ Em equipa multidisciplinar

☐ Outro, qual? _____

Secção II – Caracterização da utilização da modalidade terapêutica - educação

Se selecionou mais do que um setor de trabalho, por favor preencha esta secção relativamente à prática clínica no setor onde exerce predominantemente.

1. Em média, qual o **número de sessões** que o plano de intervenção em utentes com lombalgia crónica inclui:

☐ 1-4 sessões

☐ 5-8 sessões

☐ 9-12 sessões

☐ 13-16 sessões

☐ 17-20 sessões

☐ Mais de 20 sessões

2. Em média, qual a **percentagem de sessões em que inclui educação** no plano de intervenção para utentes com lombalgia crónica:

☐ Menos que 20% das sessões

☐ 21% a 40% das sessões

☐ 41% a 60% das sessões

☐ 61% a 80% das sessões

☐ 81% a 100% das sessões

3. Com que frequência inclui **os seguintes conteúdos na sua intervenção**:

	Nunca	Raramente	Ocasionalmente	Frequentemente	Sempre
Fornecer informação verbal ou escrita necessária para um programa de exercícios básico					

Fornecer informação sobre o diagnóstico de lombalgia					
Aconselhar ou ensinar estratégias de autogestão da condição					
Aconselhar ou ensinar postura ou movimentos correctos (para o utente)					
Questionar e atender aos receios do utente					
Fornecer informação sobre o prognóstico do utente					
Aconselhar ou ensinar estratégias para realizar actividades da vida diária					
Aconselhar ou ensinar sobre o doseamento da actividade					
Explorar as ideias e perceções do utente					
Promover saúde geral					
Aconselhar ou ensinar estratégias de resolução de problemas					
Ensinar neurofisiologia da dor					
Aconselhar o uso de dispositivos ou equipamentos de assistência técnica (exemplo: assento adaptado, dispositivo de monitorização de postura e/ou actividade física; tape)					

Aconselhar ou discutir sobre problemas emocionais ou apoio psicológico necessário					
Aconselhar sobre apoio social necessário					

4. Qual a **importância que atribui** à educação sobre os conteúdos anteriormente apresentados:

	Nada importante	Pouco importante	Algo importante	Importante	Muito importante
Fornecer informação verbal ou escrita necessária para um programa de exercícios básico					
Fornecer informação sobre o diagnóstico de lombalgia					
Aconselhar ou ensinar estratégias de autogestão da condição					
Aconselhar ou ensinar postura ou movimentos correctos (para o utente)					
Questionar e atender aos receios do utente					
Fornecer informação sobre o prognóstico do utente					
Aconselhar ou ensinar estratégias para realizar actividades da vida diária					
Aconselhar ou ensinar sobre o doseamento da actividade					

Explorar as ideias e perceções do utente					
Promover saúde geral					
Aconselhar ou ensinar estratégias de resolução de problemas					
Ensinar neurofisiologia da dor					
Aconselhar o uso de dispositivos ou equipamentos de assistência técnica (exemplo: assento adaptado, dispositivo de monitorização de postura e/ou actividade física; tape)					
Aconselhar ou discutir sobre problemas emocionais ou apoio psicológico necessário					
Aconselhar sobre apoio social					

5. Com que frequência utiliza as seguintes **estratégias educativas**:

	Nunca	Raramente	Ocasionalmente	Frequentemente	Sempre
Demostração de exercício, movimento, postura ou actividade					
Utilização de modelos ou imagens anatómicas					
Fotografia ou vídeo					
Panfletos genéricos					

Panfletos personalizados					
Conteúdo online					
Feedback verbal, táctil, com uso de informação de dispositivos (ex. *smartphones; stabilizer*) ou biofeedback (ex. electromiagrafia)					
Educação em formato individual					
Educação em formato de grupo					

6. Com que frequência utiliza as seguintes estratégias para **avaliação** da educação fornecida:

	Nunca	Raramente	Ocasionalmente	Frequentemente	Sempre
Pedir demonstração					
Interpretar sinais do utente					
Questionários para avaliação de conhecimentos					
Medidas objectivas ou standard					
Pedir ao utente que repita ou explique nas próprias palavras					
Pedir a família ou cuidadores que repitam ou expliquem nas próprias palavras					

Avaliar tarefas realizadas pelo utente através de vídeos					

7. Em média, qual o tempo dedicado a educação do utente com lombalgia crónica durante a **primeira sessão**?

☐ Menos de 5 minutos

☐ 5 – 15 minutos

☐ 15 – 30 minutos

☐ 30 – 45 minutos

☐ Mais de 45 minutos

8. Em média, qual o tempo a educação do utente com lombalgia crónica durante as **sessões subsequentes**?

☐ Menos de 5 minutos

☐ 5 – 15 minutos

☐ 15 – 30 minutos

☐ 30 – 45 minutos

☐ Mais de 45 minutos

Secção III – Identificação de barreiras, facilitadores e necessidades de aprendizagem

Se selecionou mais do que um setor de trabalho, por favor preencha esta secção relativamente à prática clínica no setor onde exerce predominantemente.

1 Classifique de acordo com o seu grau de concordância, considerando quais das seguintes **barreiras** à educação dos pacientes se aplicam a si:

	Discordo completamente	Discordo	Não concordo nem discordo	Concordo	Concordo completamente
Nível de literacia do utente					
Falta de confiança entre utente e terapeuta / Relação terapêutica estabelecida com o utente					
Estado emocional do utente (Ansiedade, medo/apreensão)					
Atitude de não colaboração do utente (ex: desmotivação, rejeição)					
Utente não compreende língua portuguesa					
Utente assume um papel passivo					
As minhas limitações de conhecimento sobre a condição clínica					
Falta de tempo para o tratamento					

A minha dificuldade em avaliar e compreender os aspectos psicossociais					
Conhecimento prévio do utente sobre lombalgia					
Falta de participação dos membros familiares					
Falta de privacidade na clínica					
As minhas dificuldade em aplicar as estratégias educativas					

1.1 Se pretender identificar outra(s), por favor especifique:

_____

2 Classifique de acordo com o seu grau de concordância os seguintes **fatores para o desenvolvimento de capacidades que facilitem** a sua utilização da educação enquanto modalidade terapêutica em utentes com lombalgia crónica:

	Discordo completamente	Discordo	Não concordo nem discordo	Concordo	Concordo completamente
Experiência pessoal com utentes com lombalgia					
Experiência profissional com utentes com lombalgia					
Discussão de casos clínicos com colegas					

Experiência anterior à formação enquanto fisioterapeuta					
Realização de formação pós-graduada (pós-graduações, mestrado, doutoramento)					
Formação específica sobre estratégias de educação para utentes com lombalgia					
Leitura de estudos publicados na área					
Participação em conferências					

2.1 Se pretender identificar outro(s), por favor especifique:

_____

3. Identifique quais dos aspectos seguintes correspondem às suas **necessidades de aprendizagem** para utilização da educação enquanto modalidade terapêutica no tratamento de utentes com lombalgia crónica:

	Discordo completamente	Discordo	Não concordo nem discordo	Concordo	Concordo completamente
Conhecimento sobre neurofisiologia da dor					
Conhecimento sobre o impacto dos aspectos psicossociais na lombalgia					
Estratégias de educação para uma prática centrada no utente					

Estratégias de educação informadas pela evidência científica					
Competências de comunicação					
Competências para tomada de decisão partilhada com o utente					
Conhecimento das recomendações da evidência para a realização de exercício					

3.1 Se pretender identificar outra(s), por favor especifique:

_____

Appendix 4. Pilot study - Template for assessment of the questionnaire

Grelha de avaliação do Questionário

Secção I – Caracterização do Expert

1. Nome:
_____

2. Local onde exerce:
_____

3. Idade: _____ (anos)

4. Quais as suas qualificações académicas? (*Assinale todas as que se aplicam*)

☐ Bacharelato em Fisioterapia
☐ Licenciatura em Fisioterapia
☐ Mestrado em Fisioterapia
☐ Mestrado numa área relacionada
☐ Doutoramento em Fisioterapia
☐ Doutoramento numa área relacionada

5. Realizou formação pós-graduada na área de condições músculo-esqueléticas com vista ao desenvolvimento de competências para educação de utentes com lombalgia crónica?
☐ Sim
☐ Não

5.1. Se "Sim", indique quais:
_____

Secção II – Opinião sobre o Questionário

1. No geral, considera o questionário claro, fácil de compreender e responder? Longo? Adaptado aos futuros respondentes (fisioterapeutas)? Considera as instruções claras?	Sim		Não	
Por favor, faça os comentários/sugestões que considere relevantes e se respondeu "não", especifique qual(ais) o(s) item(ns) e porquê.				

2. Tendo em conta a população a quem se dirige o questionário, considera que os itens do questionário são representativos do que se pretende avaliar?	Sim		Não	
Por favor, faça os comentários/sugestões que considere relevantes e se respondeu "não", especifique qual(ais) o(s) item(ns) e porquê.				
3. Considera que todos os itens do questionário são claros e fáceis de compreender e responder?	Sim		Não	
Por favor, faça os comentários/sugestões que considere relevantes e se respondeu "não", especifique qual o item/palavra e sugira outro(a) para o(a) substituir.				
4. Considera que todas as opções de resposta são claras e coerentes com as questões/ afirmações efetuadas?	Sim		Não	
Por favor, faça os comentários/sugestões que considere relevantes e se respondeu "não", especifique qual(ais) o(s) item(ns) e porquê.				
5. Considera algum item/palavra pouco claro(a) ou ambíguo(a)?	Sim		Não	
Se respondeu "sim", indique o item/palavra que sugere adicionar e/ou substituir.				
6. Considera algum item do questionário inapropriado culturalmente?	Sim		Não	
Se respondeu "sim", indique o item e sugira outro para o substituir.				
7. Considera o *layout* (Ex: formato, tipo e tamanho de letra, cores) das questões apropriado? E o espaço para as respostas abertas?	Sim		Não	
Por favor, faça os comentários/sugestões que considere relevantes e se respondeu "não", indique a questão e porquê.				
8. Comentário final e/ou sugestões?				

Quanto tempo demorou a responder ao questionário? _____minutos.

Obrigado pela sua colaboração!

Appendix 5. Pilot study - Report

Pilot Study Report

It was performed a pilot study with the intent of inspecting the construction of the instrument of data collection – the questionnaire. The pilot test also served to see if the online platform LymeSurvey was functioning as expected, to be used in the main study.

It was assessed, through a section of 7 questions (yes / no with comments), that was available for 4 weeks, since 12th of March to 12th of April of 2020. It was sent a reminder in the middle of this period in order to maximize the response rate.

Seven experts were invited, and by the end of first week all but one had replied, which also did during the expected period.

Table 1 – Questions and respective answers

Question	Answer "Yes"	Answer "No"
Q1. Do you consider the questionnaire easy to understand? Adapted to future repliers?	6	1
Q2. Do you consider the questions representative of the aim of the study?	6	1
Q3. Do you consider all the items clear, easy to understand and to answer?	4	3
Q4. Are all options of reply clear and coherent with their questions?	4	3
Q5. Is there any item / word not clear or ambiguous?	3	4
Q6. Is there any cultural inappropriate item?	1	6
Q7. Is the layout (format, type, size of letter) of the questions appropriate? And the space for open questions?	6	1
Q8. How long did you take to reply to the questionnaire?	Times: 13, 15, 15, 15, 20, 24, 30. Average: 19 minutes	

Table 2 – Analysis of answers

Question	Comment	Consideration
Q1	"In some questions (specially in the section III), the question is about the difficulty that the replier has. This might raise a few questions, because who replies can think one item is a barrier but doesn't apply to him/herself since they don't have the necessary skills."	Rewriting of questions in the section III from "How would you classify the following **barriers** to patient education:" to "How would you classify the following **barriers** to patient education that apply to yourself?".

Q1	"I consider the questionnaire clear and easy to understand. The instructions are clear."	Comment with no considerations to take into account, no changes were made.
Q1	"In general, both the questionnaire as its instructions are clear and easy to understand. I think it's a bit long, but it's adequate when considering the different dimensions assessed. The questionnaire is adapted to the future repliers, since the questions made are applicable in any physiotherapy context."	Regarding the questionnaire's extent, we tried to find the balance between too short and insufficient and too long and broad. No changes were made.
Q1	"Section I- Question 3. What are your physiotherapy qualification(s)? It should allow more than 1 option"	Disparity between word and online, corrected to "check your highest academic degree".
Q2	"Yes, all the items are relevant and specific of what's aimed to assess. As a suggestion, I think it'd be relevant to understand if the physiotherapists work under a medical prescription or autonomously, since the number of sessions might not be defined by the therapists themselves."	Question (about medical prescription) considered previously and not included here because there are other works with that aspect in scope.
Q2	"Difficult to answer because it's lacking the definition of "patient education"."	Considered important, added suggested definitions, from E. Bartlett, WHO and R. Forbes.
Q3	"There's a general lack of context which can be given by the definition of "patient education"	Considered important, correction with the previous point.
Q3	"Section I – Question 3 Several answers are presented, but it's only possible to select one. If the researchers pretend only one, it must be explicit on the question itself (usually it's requested the highest academic degree). Section I – Question 5 The question refers to "graduation training" but I think it will be of greater general understanding the use of "base training"."	Both comments deemed relevant, replacement of suggestions: asked to check the highest academic degree and replacement of "graduation training" for "base training".
Q3	"Section III, question 1, item "attitude of patient". I think this is vague and would be better if associated with an action, such as item "patient assuming a passive role" or an attitude "patient is not motivated". Section II, question 3, item "Asking and addressing the patient's concerns" I have questions about the meaning of "addressing" in this context, we can see it regarding understanding or acting on those concerns. I suggest considering or reply."	Both comments deemed relevant, replacement of "attitude of patient" for "Demotivation of patient" and "Asking and addressing the patient's concerns" for "Asking and replying to the patient's concerns".

Q4	"Only have one comment regarding the options "other" on the last section: they're mandatory but there isn't any question that clarifies which are the barriers, contributing factors or learning necessities. In this sense, I think the objective of the question is lost when the participant must reply in a scale of agree-disagree but we don't know what they're talking about.	Rewriting of the questions on the last section (III) separating the item "other" from each question, turning it into a subsequent question (1.1, 2.1 and 3.1), with space to the participants identify others they find appropriate.
Q4	"Section 3 – Question 2 – I think the relationship between the question and the answers isn't very clear, because the question itself relates to the fa	Lonely comment amongst the experts, not considered.
Q4	"In which are you interested: what I think is a barrier in general, or what are the barriers that apply to me, depending on my training and knowledge."	Rewriting of questions in the section III from "How would you classify the following **barriers** to patient education:" to "How would you classify the following **barriers** to patient education that apply to yourself?
Q4	"Personally I think the option "Don't agree nor disagree" should not be included."	Lonely comment amongst the experts, not considered.
Q4	"Section I – Question 10 The options "private, public and conventionate", but I believe there are facilities with public-private partnerships Section III – Questions 1 and 2 It's presented "Other" as mandatory answer, but in case this item doesn't apply, the participant must obligatorily fill in the field "other" to finish the questionnaire. I suggest relocating the "other" to a separate question, and without the mandatory obligation."	Disparity between word and online, corrected with the option "Mist (public-private partnership)". Section III, rewriting of both questions with a non mandatory follow-up question for the field "other".
Q5	"Already mentioned on Q3: Section III, question 1, item "attitude of patient". I think this is vague (…) those concerns. I suggest considering or reply."	Comment exactly the same as Q3, already corrected.
Q5	"Question 7. (section III question 1) It's unclear what "lack of trust" means. Emotional status (there are many emotional states). Attitude of patient (there are attitudes that can be positive, others negative. My lack of knowledge (which knowledge?) Knowledge or literacy of patient (vague) My limitations on what education strategies to use (what limitations)"	Replacement to "lack of trust" for "Lack of trust between patient and therapist / Therapeutic relationship with patient". Complement of "Emotional status of patient" with "(anxiety, fear/apprehensiveness)".

		"Attitude of patient" already replaced by "Demotivation of patient". Complement of "My lack of knowledge" with "about the clinical condition". Replacement of "Knowledge or literacy of patient" for "Previous knowledge of patient on low back pain" and addition of "/Literacy of patient" to "Cognitive status of patient". Replacement of "My limitations on what education strategies to use" for "My difficulties in using education strategies".
Q5	"Section II – Question 3 Providing information about the patient's condition or diagnosis This item can be ambiguous since it can lead into different aspects. Is it diagnostic in physiotherapy? And what does "patient's condition" means? It seems vague and hence physiotherapists may have different understandings between themselves. Advice or teaching correct posture and movement The objective is really questioning about correct movements and posture? Seems to me that this item can lead to different understandings, once the teaching of postures and movements can be the correct and appropriate for the patient's context in particular or it can be interpreted as the correct for everyone. And this are concepts very far apart from the perspective of the current knowledge and subjacent clinical practice. I suggest clarification. Advice on use of assistive devices or equipment Didn't understand this question. I believe examples might facilitate. Counseling about stress, emotional or psychosocial problems This question can originate a much wider interpretation… I think it would be important to narrow down regarding the context of intervention of any health professional versus the professionals specialized on this kind of matters.	Replacement of "Providing information about the patient's condition or diagnosis" for "Providing information about the diagnosis of low back pain". Difference considered pertinent, clarified between parenthesis with "to the patient". Addition of examples of assistive devices or equipment: "(example: adapted seat; device to monitor physical activity)". Replacement of "Counseling about stress, emotional or psychosocial problems" for "Counseling about stress / emotional problems or

	Section II – Question 5 Use of biofeedback equipment Is the objective to explore strategies of feedback, or specifically biofeedback? I think it would be important to clarify which."	necessary psychological support". Clarification of the concept of feedback, also with addition of examples to "Feedback, verbal, tactile, with devices (example: *smartphones*, *stabilizer*) or biofeedback (ex: electromyography)".
Q6	"Section II, questions 3 and 4, items "Advice or teaching self-management strategies". Existing Portuguese translation, we recommend it. (self-management was written in English in the PT version)	Comment accepted and changed to Portuguese.
Q7	"It would be important to have questions about the previous training (or models on the base training) in models of psychotherapy cognitive behavioural therapy and communication (motivational, interviewing etc..)	Comment deemed pertinent but we looked for the balance between too short and insufficient and too long and broad. No changes were made.
Q7	"Yes, the layout is adequate and presents an adequate ratio of questions per page. The space to open answers is also appropriate."	Comment with no considerations to take into account, no changes were made.
Q7	"In some questions if the participant ticks "other" it pops a text box to justify, in others it doesn't. I think the criteria should be always the same, with text box.	Comment considered and all questions where it's possible to mark "other" were checked and corrected to allow the possibility of an open answer.

Appendix 6. Mann-Whitney tables

Mann-Whitney tables for years of experience with variables from questions 3, 4, 5, 6 of section II and questions 1, 2 and 3 of section III.

Mann-Whitney Test

Section II Question 3 "How **frequent** do you use the following **patient education activities**"

Postos

	Expertise	N	Posto Médio	Soma de Postos
Provide information for exercises	Novice	79	54,37	4295,50
	Non-novice	33	61,59	2032,50
	Total	112		
Provide information on diagnosis of LBP	Novice	79	51,60	4076,50
	Non-novice	33	68,23	2251,50
	Total	112		
Teach self-management strategies	Novice	79	53,37	4216,00
	Non-novice	33	64,00	2112,00
	Total	112		
Teach correct posture or movements	Novice	79	54,75	4325,00
	Non-novice	33	60,70	2003,00
	Total	112		
Question and address patients' concerns	Novice	79	51,75	4088,50
	Non-novice	33	67,86	2239,50
	Total	112		
Provide information on prognostic	Novice	79	51,21	4045,50
	Non-novice	33	69,17	2282,50
	Total	112		
Teach strategies to ADL	Novice	79	51,84	4095,50
	Non-novice	33	67,65	2232,50
	Total	112		
Advise on activity dosage	Novice	79	54,31	4290,50
	Non-novice	33	61,74	2037,50

	Total	112		
Explore patients' perceptions	Novice	79	51,08	4035,50
	Non-novice	33	69,47	2292,50
	Total	112		
Promote general health	Novice	79	55,85	4412,00
	Non-novice	33	58,06	1916,00
	Total	112		
Advise on problem solving strategies	Novice	79	56,02	4425,50
	Non-novice	33	57,65	1902,50
	Total	112		
Teach pain neurophysiology	Novice	79	50,61	3998,50
	Non-novice	33	70,59	2329,50
	Total	112		
Advise on assistive devices	Novice	79	51,73	4087,00
	Non-novice	33	67,91	2241,00
	Total	112		
Discuss emotional problems or psychological support	Novice	79	54,04	4269,00
	Non-novice	33	62,39	2059,00
	Total	112		
Discuss social suport	Novice	79	53,78	4248,50
	Non-novice	33	63,02	2079,50
	Total	112		

Estatísticas de teste[a]

	Provide information for exercises	Provide information on diagnosis of LBP	Teach self-management strategies	Teach correct posture or movements
U de Mann-Whitney	1135,500	916,500	1056,000	1165,000
Wilcoxon W	4295,500	4076,500	4216,000	4325,000
Z	-1,173	-2,615	-1,743	-,930
Significância Assint. (Bilateral)	,241	,009	,081	,352

Estatísticas de teste[a]

	Question and address patients' concerns	Provide information on prognostic	Teach strategies to ADL	Advise on activity dosage
U de Mann-Whitney	928,500	885,500	935,500	1130,500
Wilcoxon W	4088,500	4045,500	4095,500	4290,500
Z	-2,627	-2,864	-2,572	-1,219
Significância Assint. (Bilateral)	,009	,004	,010	,223

Estatísticas de teste[a]

	Explore patients' perceptions	Promote general health	Advise on problem solving strategies	Teach pain neurophysiology
U de Mann-Whitney	875,500	1252,000	1265,500	838,500
Wilcoxon W	4035,500	4412,000	4425,500	3998,500
Z	-2,901	-,359	-,266	-3,097
Significância Assint. (Bilateral)	,004	,720	,790	,002

Estatísticas de teste[a]

	Advise on assistive devices	Discuss emotional problems or psychological support	Discuss social suport
U de Mann-Whitney	927,000	1109,000	1088,500
Wilcoxon W	4087,000	4269,000	4248,500
Z	-2,536	-1,305	-1,432
Significância Assint. (Bilateral)	,011	,192	,152

a. Variável de Agrupamento: Expertise

Mann-Whitney Test

Section II Question 4 "How **important** do you think the following **patient education activities** are"

Postos

	Expertise	N	Posto Médio	Soma de Postos
Provide information for exercises	Novice	79	55,24	4364,00
	Non-novice	33	59,52	1964,00
	Total	112		

Provide information on diagnostic of LBP	Novice	79	54,82	4331,00
	Non-novice	33	60,52	1997,00
	Total	112		
Teach self-management strategies	Novice	79	56,66	4476,00
	Non-novice	33	56,12	1852,00
	Total	112		
Teach correct posture or movements	Novice	79	56,47	4461,50
	Non-novice	33	56,56	1866,50
	Total	112		
Question and address patients' concerns	Novice	79	57,60	4550,50
	Non-novice	33	53,86	1777,50
	Total	112		
Provide information on prognostic	Novice	79	53,28	4209,00
	Non-novice	33	64,21	2119,00
	Total	112		
Teach strategies to ADL	Novice	79	56,39	4455,00
	Non-novice	33	56,76	1873,00
	Total	112		
Advise on activity dosage	Novice	79	55,89	4415,50
	Non-novice	33	57,95	1912,50
	Total	112		
Explore patients' perceptions	Novice	79	56,01	4424,50
	Non-novice	33	57,68	1903,50
	Total	112		
Promote general health	Novice	79	56,98	4501,50
	Non-novice	33	55,35	1826,50
	Total	112		
Advise on problem solving strategies	Novice	79	55,94	4419,50
	Non-novice	33	57,83	1908,50
	Total	112		
Teach pain neurophysiology	Novice	79	55,23	4363,50
	Non-novice	33	59,53	1964,50
	Total	112		

Advise on assistive devices	Novice	79	54,94	4340,00
	Non-novice	33	60,24	1988,00
	Total	112		
Discuss emotional problems or psychological support	Novice	79	56,82	4488,50
	Non-novice	33	55,74	1839,50
	Total	112		
Discuss social suport	Novice	79	58,58	4628,00
	Non-novice	33	51,52	1700,00
	Total	112		

Estatísticas de teste[a]

	Provide information for exercises	Provide information on diagnostic of LBP	Teach self-management strategies	Teach correct posture or movements
U de Mann-Whitney	1204,000	1171,000	1291,000	1301,500
Wilcoxon W	4364,000	4331,000	1852,000	4461,500
Z	-,769	-,899	-,114	-,014
Significância Assint. (Bilateral)	,442	,368	,909	,989

Estatísticas de teste[a]

	Question and address patients' concerns	Provide information on prognostic	Teach strategies to ADL	Advise on activity dosage
U de Mann-Whitney	1216,500	1049,000	1295,000	1255,500
Wilcoxon W	1777,500	4209,000	4455,000	4415,500
Z	-,704	-1,744	-,067	-,347
Significância Assint. (Bilateral)	,482	,081	,947	,728

Estatísticas de teste[a]

	Explore patients' perceptions	Promote general health	Advise on problem solving strategies	Teach pain neurophysiology
U de Mann-Whitney	1264,500	1265,500	1259,500	1203,500
Wilcoxon W	4424,500	1826,500	4419,500	4363,500
Z	-,286	-,294	-,315	-,680
Significância Assint. (Bilateral)	,775	,769	,753	,497

Estatísticas de teste[a]

	Advise on assistive devices	Discuss emotional problems or psychological support	Discuss social suport
U de Mann-Whitney	1180,000	1278,500	1139,000
Wilcoxon W	4340,000	1839,500	1700,000
Z	-,816	-,174	-1,118
Significância Assint. (Bilateral)	,414	,862	,264

a. Variável de Agrupamento: Expertise

Mann-Whitney Test

Section II Questions 5 and 6. How frequent do you use the following **education delivery** approaches? How frequent do you use the following **evaluation of education** approaches?

Postos

	Expertise	N	Posto Médio	Soma de Postos
Demonstration of movement or posture	Novice	79	54,72	4322,50
	Non-novice	33	60,77	2005,50
	Total	112		
Use of anatomic models or pictures	Novice	79	51,70	4084,00
	Non-novice	33	68,00	2244,00
	Total	112		
Use of photography or video	Novice	79	49,11	3879,50
	Non-novice	33	74,20	2448,50
	Total	112		
Generic leaflets	Novice	79	50,54	3993,00
	Non-novice	33	70,76	2335,00
	Total	112		
Personalised leaflets	Novice	79	50,03	3952,00
	Non-novice	33	72,00	2376,00
	Total	112		
Online content	Novice	79	51,75	4088,00
	Non-novice	33	67,88	2240,00
	Total	112		
Feeback	Novice	79	54,54	4308,50
	Non-novice	33	61,20	2019,50

	Total	112		
Individual education	Novice	79	53,35	4214,50
	Non-novice	33	64,05	2113,50
	Total	112		
Group education	Novice	79	53,09	4194,50
	Non-novice	33	64,65	2133,50
	Total	112		
Ask for demonstration	Novice	79	54,01	4267,00
	Non-novice	33	62,45	2061,00
	Total	112		
Interpret patient signs	Novice	79	51,46	4065,00
	Non-novice	33	68,58	2263,00
	Total	112		
Questionnaires	Novice	79	55,20	4361,00
	Non-novice	33	59,61	1967,00
	Total	112		
Objective or standard measures	Novice	79	53,30	4211,00
	Non-novice	33	64,15	2117,00
	Total	112		
Ask the patient to repeat in own words	Novice	79	56,49	4462,50
	Non-novice	33	56,53	1865,50
	Total	112		
Ask family to repeat in own words	Novice	79	55,30	4369,00
	Non-novice	33	59,36	1959,00
	Total	112		
Assess through videos	Novice	79	53,91	4258,50
	Non-novice	33	62,71	2069,50
	Total	112		

Estatísticas de teste[a]

	Demonstration of movement or posture	Use of anatomic models or pictures	Use of photography or video	Generic leaflets
U de Mann-Whitney	1162,500	924,000	719,500	833,000
Wilcoxon W	4322,500	4084,000	3879,500	3993,000

Z	-1,010	-2,522	-3,868	-3,136
Significância Assint. (Bilateral)	,312	,012	,000	,002

Estatísticas de teste[a]

	Personalised leaflets	Online content	Feeback	Individual education
U de Mann-Whitney	792,000	928,000	1148,500	1054,500
Wilcoxon W	3952,000	4088,000	4308,500	4214,500
Z	-3,370	-2,487	-1,013	-1,708
Significância Assint. (Bilateral)	,001	,013	,311	,088

Estatísticas de teste[a]

	Group education	Ask for demonstration	Interpret patient signs	Questionnaires
U de Mann-Whitney	1034,500	1107,000	905,000	1201,000
Wilcoxon W	4194,500	4267,000	4065,000	4361,000
Z	-1,812	-1,406	-2,859	-,694
Significância Assint. (Bilateral)	,070	,160	,004	,488

Estatísticas de teste[a]

	Objective or standard measures	Ask the patient to repeat in own words	Ask family to repeat in own words	Assess through videos
U de Mann-Whitney	1051,000	1302,500	1209,000	1098,500
Wilcoxon W	4211,000	4462,500	4369,000	4258,500
Z	-1,673	-,007	-,626	-1,391
Significância Assint. (Bilateral)	,094	,995	,531	,164

a. Variável de Agrupamento: Expertise

Mann-Whitney Test

Section III Question 1. "How would you classify the following **barriers** to patient education that apply to yourself"

Postos

	Expertise	N	Posto Médio	Soma de Postos
Literacy of patient	Novice	79	56,89	4494,50
	Non-novice	33	55,56	1833,50

	Total	112		
Therapeutic relationship with patient	Novice	79	59,46	4697,00
	Non-novice	33	49,42	1631,00
	Total	112		
Emotional status of patient	Novice	79	58,18	4596,00
	Non-novice	33	52,48	1732,00
	Total	112		
Non cooperative attitude of patient	Novice	79	57,81	4567,00
	Non-novice	33	53,36	1761,00
	Total	112		
Patient not understanding Portuguese language	Novice	79	59,28	4683,50
	Non-novice	33	49,83	1644,50
	Total	112		
Patient assuming a passive role	Novice	79	55,94	4419,50
	Non-novice	33	57,83	1908,50
	Total	112		
My lack of knowledge of the topic about the clinical condition	Novice	79	59,51	4701,50
	Non-novice	33	49,29	1626,50
	Total	112		
Lack of time allocated for treatment session	Novice	79	62,74	4956,50
	Non-novice	33	41,56	1371,50
	Total	112		
My lack of knowledge to address psychosocial aspects	Novice	79	60,32	4765,00
	Non-novice	33	47,36	1563,00
	Total	112		
Previous knowledge of patient on low back pain	Novice	79	56,87	4493,00
	Non-novice	33	55,61	1835,00
	Total	112		
Lack of participation by family members	Novice	79	58,93	4655,50
	Non-novice	33	50,68	1672,50
	Total	112		
Lack of privacy in clinic environment	Novice	79	64,35	5084,00
	Non-novice	33	37,70	1244,00

	Total	112		
My difficulties in using education strategies	Novice	79	62,30	4922,00
	Non-novice	33	42,61	1406,00
	Total	112		

Estatísticas de teste[a]

	Literacy of patient	Therapeutic relationship with patient	Emotional status of patient	Non cooperative attitude of patient
U de Mann-Whitney	1272,500	1070,000	1171,000	1200,000
Wilcoxon W	1833,500	1631,000	1732,000	1761,000
Z	-,214	-1,566	-,931	-,727
Significância Assint. (Bilateral)	,830	,117	,352	,467

Estatísticas de teste[a]

	Patient not understanding Portuguese language	Patient assuming a passive role	My lack of knowledge of the topic about the clinical condition	Lack of time allocated for treatment session
U de Mann-Whitney	1083,500	1259,500	1065,500	810,500
Wilcoxon W	1644,500	4419,500	1626,500	1371,500
Z	-1,446	-,307	-1,567	-3,216
Significância Assint. (Bilateral)	,148	,759	,117	,001

Estatísticas de teste[a]

	My lack of knowledge to address psychosocial aspects	Previous knowledge of patient on low back pain	Lack of participation by family members	Lack of privacy in clinic environment
U de Mann-Whitney	1002,000	1274,000	1111,500	683,000
Wilcoxon W	1563,000	1835,000	1672,500	1244,000
Z	-1,988	-,204	-1,300	-4,090
Significância Assint. (Bilateral)	,047	,838	,193	,000

Estatísticas de teste[a]

	My difficulties in using education strategies
U de Mann-Whitney	845,000

Wilcoxon W	1406,000
Z	-3,043
Significância Assint. (Bilateral)	,002

a. Variável de Agrupamento: Expertise

Mann-Whitney Test

Section III Question 2 "How would you classify the following **factors contributing** to the development of skills that facilitate patient education with chronic low back pain patients"

Postos

	Expertise	N	Posto Médio	Soma de Postos
Personal experience with patients'	Novice	79	55,61	4393,00
	Non-novice	33	58,64	1935,00
	Total	112		
Professional experience with patients'	Novice	79	56,03	4426,50
	Non-novice	33	57,62	1901,50
	Total	112		
Interaction with colleagues	Novice	79	53,28	4209,00
	Non-novice	33	64,21	2119,00
	Total	112		
Training and/or experience before physiotherapy studies	Novice	79	59,11	4669,50
	Non-novice	33	50,26	1658,50
	Total	112		
Personal experience prior to physiotherapist training	Novice	79	59,39	4691,50
	Non-novice	33	49,59	1636,50
	Total	112		
Post-graduate Academic/University studies	Novice	79	57,61	4551,00
	Non-novice	33	53,85	1777,00
	Total	112		
	Novice	79	54,73	4323,50

Specific training on communication strategies for low back pain patients	Non-novice	33	60,74	2004,50
	Total	112		
Reading of related published studies	Novice	79	55,44	4379,50
	Non-novice	33	59,05	1948,50
	Total	112		
Participating in conferences	Novice	79	58,33	4608,00
	Non-novice	33	52,12	1720,00
	Total	112		

Estatísticas de teste[a]

	Personal experience with patients'	Professional experience with patients'	Interaction with colleagues	Training and/or experience before physiotherapy studies
U de Mann-Whitney	1233,000	1266,500	1049,000	1097,500
Wilcoxon W	4393,000	4426,500	4209,000	1658,500
Z	-,468	-,248	-1,838	-1,406
Significância Assint. (Bilateral)	,640	,804	,066	,160

Estatísticas de teste[a]

	Personal experience prior to physiotherapist training	Post-graduate Academic/University studies	Specific training on communication strategies for low back pain patients	Reading of related published studies
U de Mann-Whitney	1075,500	1216,000	1163,500	1219,500
Wilcoxon W	1636,500	1777,000	4323,500	4379,500
Z	-1,668	-,608	-,920	-,563
Significância Assint. (Bilateral)	,095	,543	,358	,573

Estatísticas de teste[a]

	Participating in conferences
U de Mann-Whitney	1159,000
Wilcoxon W	1720,000
Z	-1,010

Significância Assint. (Bilateral)	,312

a. Variável de Agrupamento: Expertise

Mann-Whitney Test

Section III Question 3 "Identify which of the following aspects correspond to your **learning necessities** regarding patient education for chronic low back pain patients"

Postos

	Expertise	N	Posto Médio	Soma de Postos
Knowledge about pain neurophysiology	Novice	79	60,01	4740,50
	Non-novice	33	48,11	1587,50
	Total	112		
Knowledge about the impact of psychosocial aspects of low back pain	Novice	79	59,19	4676,00
	Non-novice	33	50,06	1652,00
	Total	112		
Strategies of education for a patient centred practice	Novice	79	59,85	4728,00
	Non-novice	33	48,48	1600,00
	Total	112		
Strategies of education for an evidence based practice	Novice	79	58,92	4655,00
	Non-novice	33	50,70	1673,00
	Total	112		
Communication skills	Novice	79	58,11	4591,00
	Non-novice	33	52,64	1737,00
	Total	112		
Skills to share decisions with patients	Novice	79	57,81	4567,00
	Non-novice	33	53,36	1761,00
	Total	112		
Knowledge of the recommendations for exercise	Novice	79	58,59	4629,00
	Non-novice	33	51,48	1699,00
	Total	112		

Estatísticas de teste[a]

	Knowledge about pain neurophysiology	Knowledge about the impact of psychosocial aspects of low back pain	Strategies of education for a patient centred practice	Strategies of education for an evidence based practice
U de Mann-Whitney	1026,500	1091,000	1039,000	1112,000
Wilcoxon W	1587,500	1652,000	1600,000	1673,000
Z	-1,981	-1,450	-1,824	-1,348
Significância Assint. (Bilateral)	,048	,147	,068	,178

Estatísticas de teste[a]

	Communication skills	Skills to share decisions with patients	Knowledge of the recommendations for exercise
U de Mann-Whitney	1176,000	1200,000	1138,000
Wilcoxon W	1737,000	1761,000	1699,000
Z	-,867	-,727	-1,114
Significância Assint. (Bilateral)	,386	,467	,265

a. Variável de Agrupamento: Expertise