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RESEARCH ARTICLE



How do novice physiotherapists practice patient education? A video elicitation interview study in musculoskeletal clinical practice in Portugal

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ABSTRACT

Background and purpose: Musculoskeletal disorders are a leading cause of disability worldwide, for which person-centred education is recommended as a first-line approach. However, novice physiotherapists often face greater challenges in delivering patient education, and limited understanding exists regarding how it is enacted in everyday clinical practice. This study aimed to explore how Portuguese novice physiotherapists enact patient education during musculoskeletal sessions and how they rationalise their educational practices.

Methods: An ethnographic study was conducted, involving video-based observations of musculoskeletal treatment sessions delivered by novice physiotherapists, followed by video-elicitation interviews. Data were analysed using a deductive, data-driven content analysis approach.

Results: Eight novice physiotherapists (≤5 years of professional experience) participated. Educational practices were categorised into three types of therapeutic relationship: activity-passivity, guidance-cooperation, and mutual participation. Most participants demonstrated characteristics of more than one type across interactions; although, a dominant type could be identified for each physiotherapist. Overall, practices tended to cluster towards activity-passivity and guidance-cooperation, with fewer instances of mutual participation.

Conclusion: The findings suggest that patient education delivered by Portuguese novice physiotherapists remains largely physiotherapist-centred, with limited enactment of shared decision-making and patient autonomy. These results highlight the need for educational and mentorship strategies that better support novice physiotherapists in translating person-centred principles into routine musculoskeletal practice.

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elicitation interviews

Introduction

Patient education constitutes an essential component of effective healthcare provision within a person-centred care model and holds significant value for both physiotherapists and their patients [1–4]. In the context of musculoskeletal care, patient education is routinely advocated as a primary intervention for managing various health conditions [5,6]. Physiotherapists frequently spend more time with patients than many other healthcare professionals, placing them in an advantageous position to deliver personalised patient education [7,8]. Although education is regarded as a central responsibility of physiotherapists, delivering optimal patient education can be especially challenging in private practice, where practitioners face the pressure of offering high-quality care to a continuous stream of patients presenting with a wide range of clinical conditions, all within restricted timeframes [9].

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Several studies have highlighted challenges and barriers in implementing educational interventions within the scope of physiotherapy practice [2,4,10]. Current evidence indicates that patient education is predominantly healthcare professional (HCP) centred or delivered in a didactic manner, with limited adaptation to the individual needs of patients [7]. Additionally, patient education practices appear to vary between experienced and novice physiotherapists, with the latter reporting greater difficulties and encountering additional obstacles to the effective delivery of patient education [11,12]. Research has shown that novice physiotherapists tend to prioritise clinical skills over patient education and communication, and frequently do not employ educational strategies that encourage patient responsibility and engagement in decision-making [11–13]. Although Portuguese novice physiotherapists may demonstrate strong self-efficacy and a sense of preparedness regarding various aspects of patient education, they report encountering several barriers, including patients' reluctance to engage with educational content, negative perceptions of physiotherapy, prior experiences, and individual personal traits [14].

Patient education within a person-centred care model involves fostering a process of interaction and collaboration between physiotherapist and patient [9,15]. It requires an alliance that must consider not only the application of technical knowledge, but also the therapeutic relationship. Within physiotherapy, the therapeutic relationship is embedded in multiple professional practice standards, underscoring its significance in delivering competent and effective care [16,17] and influencing physiotherapists' approach to patient education. In their seminal work, Szasz and Hollender [18] suggest three models of the relationship between HCPs and patients: 1—activity-passivity; 2—guidance-cooperation; and 3—mutual participation. Later, Botelho [19] introduced a fourth conceptual model: 4—autonomism. The first two models are entirely paternalistic and, thus, predominantly HCP-centred. The latter, mutual participation and autonomism, support a therapeutic relationship that aligns more closely with the principles of person-centred care [20]. More recently Roussel and Frenay [3] proposed an operationalisation of these models through the identification of specific types and subtypes of therapeutic relationship. These authors interviewed twenty-six HCPs and identified four types of therapeutic relationship that are fully aligned with the aforementioned models and underpin patient education practice delivered by health professionals from different backgrounds, such as nurses, doctors, physiotherapists, dietitians, and pharmacists [3]. However, the study by Roussel and Frenay [3] had several limitations, including reliance on self-reported practices and a small sample size of only three physiotherapists.

There is limited understanding of how novice physiotherapists practice patient education within a musculoskeletal care setting. Considering the barriers previously identified by novice physiotherapists, this study aimed to address the following research questions: how do Portuguese novice physiotherapists enact patient education during musculoskeletal treatment sessions? And how do Portuguese novice physiotherapists rationalise and make sense of their educational practices during these encounters? By addressing both observable practices and practitioners' interpretations, these questions enable an integrated examination of the frameworks guiding patient education in early-career physiotherapy practice.

Methods

This study was designed to capture both observable educational practices and physiotherapists' interpretations of those practices. It was informed by an interpretivist paradigm, which views knowledge as socially constructed [21]. Ethnography was considered the most appropriate methodological approach due to its alignment with the research aim of exploring the models underpinning patient education practice of Portuguese novice physiotherapists in musculoskeletal clinical settings. This methodological approach enabled an in-depth understating of practices within real-word contexts, allowing the researchers to observe and analyse the interactions between novice physiotherapists and patients as they naturally occur [22,23]. Compared to approaches such as phenomenology or case study, which focus more narrowly on individual experiences or specific cases, ethnography was considered more suitable as it allows for uncovering the implicit models guiding novice physiotherapists' practices, as well as the cultural, social, or organisational factors that may influence them [24].

Since more than half of physiotherapists in Portugal work in private practice or in rehabilitation centres or clinics (outsourced physiotherapy service) [25], this study focused particularly on clinical settings

within private practice and involved one to one interactions. In the context of this study, clinical practice is viewed as a setting that enables the observation and analysis of one-on-one communication between physiotherapist and patient. It is also a challenging environment, where time and financial pressures can hinder the quality of communication that physiotherapists can achieve with their patients [26]. The cultural context of physiotherapy practice was operationalised through video observation of authentic sessions between Portuguese novice physiotherapist and patients, field notes, and video-elicitation interviews with those physiotherapists, allowing the researchers to examine, explore, and understand how patient education practices were shaped.

The protocol for this study received approval from the Ethics Committee of Setúbal Polytechnic Institute (CE-IPS) (CE-IPS n° PI 99- 03-2024).

Participants

Participants in this study comprised Portuguese novice physiotherapists, defined as those with five years or fewer of professional experience [13,27], who had completed a four-year physiotherapy degree program in Portugal. This cut-off is consistent with previous physiotherapy research that distinguishes between novice and experienced HCPs based on comparable thresholds [3,11]. The selection of this threshold is further substantiated by professional development theory, particularly Benner's novice-to-expert model, which conceptualises the early years of practice as a phase of consolidation. During these early years, HCPs progress from relying primarily on rule-based reasoning to pattern recognition and reflective judgement [28]. In the Portuguese context, recent work on early-career physiotherapists suggested that during the first five years, professionals are still developing confidence, autonomy, and communication competencies necessary for effective patient education [14].

Participant recruitment used purposeful sampling. Firstly, the physiotherapists who graduated from the X school in the past five years were contacted *via* email by the course coordinator. This procedure resulted in an insufficient number of candidates primarily due to limited interest and availability among potential volunteers. Therefore, a publication on the Musculoskeletal Physiotherapy Interest Group's (Grupo de Interesse em Fisioterapia Músculo-esquelética) social media was promoted, achieving nationwide reach. This adjustment contributed to enhancing diversity of participants. When interest in participating was confirmed, a consent form was sent *via* link to be filled by the physiotherapist. Each physiotherapist was asked to select and invite a patient to record a physiotherapy session with and, as a result, participate in the study. The patient recruited should be undergoing treatment for a clinical condition where education is recommended by guidelines as a primary treatment option. An information sheet was given to the patient by the physiotherapist, allowing time to read and ask questions to either the physiotherapist or the lead investigator (IF). Afterwards, a day was agreed between the physiotherapist and the patient to record the physiotherapy session. The patient was required to give consent to being video-recorded and to participate in the study by completing the patient consent form, which was sent *via* link to the physiotherapist.

Data collection

Two data collection methods were used; non-participant observation (video-based observation) and semi-structured interviews (video elicitation interviews).

The video recording and camera angle were determined by the physiotherapist's preferred device, provided it met quality standards. The recordings were then shared *via* OneDrive (Outlook) or Drive (Gmail) to the email address specified in the information sheet. The video was then downloaded to a password protected folder in the lead investigator's computer. Physiotherapists were recommended to delete the recording from OneDrive or Drive five days after it being shared. An observation guide was developed to be applied in the observation of the video recordings. This guide included different types and subtypes of therapeutic relationship that derived from the models by Szasz and Hollender [18], Botelho [19], and were explored more recently by Roussel and Frenay [3].

Interviews occurred online, *via* Microsoft Teams, scheduled according to the availability of participants, one to two weeks after the video recording and were conducted by the lead investigator. A semi-structured

interview schedule was followed, and the topics of the interview were patient education, reasons associated, and variations thereof, based on the video. This schedule was adapted to each interview, taking into consideration the prior observation and including the video excerpts. While the core structure and key topics remained consistent across participants, the phrasing and sequencing of some questions were adapted to the specific content of each video-recorded session. This approach ensured that the discussion focused on participants' own practices and reasoning, rather than on abstract scenarios. For example, if the observed session showed the physiotherapist providing corrective feedback on exercise performance, follow-up questions explored how they decided which information to prioritise and how they assessed patient understanding. Conversely, when a physiotherapist was observed offering reassurance or addressing patient concerns, probes focused on how emotional or relational cues influenced their educational strategies. These contextual adaptations enhanced the depth and ecological validity of the data while maintaining comparability across interviews. An overall example of the translated interview schedule is provided in [Appendix A](#). The interviews were audio-recorded for verbatim transcription, which was conducted by the lead researcher, with the support of Microsoft Teams. Throughout the transcription process, pseudonyms were employed to ensure participant anonymity.

Data collection was concluded after analysing the first eight videos and their associated interviews, following a reflexive assessment of analytic sufficiency rather than a claim of exhaustive saturation. While acknowledging ongoing debate around the concept of data saturation, decisions regarding the conclusion of data collection were guided by pragmatic and interpretive considerations rather than by an assumption of complete saturation across all possible practices [29]. Rather than seeking a rigid notion of saturation, this study followed a reflexive approach consistent with Braun and Clarke's [30] interpretive stance, focusing on the richness and depth of data within each case. Data collection concluded when the research team observed that additional interviews largely reiterated previously identified patterns of reasoning, relational dynamics, and communication strategies within this specific sample, without substantially extending the analytic framework. At that point, no substantially new ideas were emerging in relation to the study aims; and sufficient depth and variation had already been attained across the participating physiotherapists.

Data analysis

Data were analysed using a deductive, data-driven content analysis approach [31]. According to this approach, the researchers analysed the collected data using a theoretically grounded framework that predetermined the main categories and subcategories of analysis [31–33]. The analytical framework was derived from existing models of therapeutic relationships [3,18,19], which provided a theoretical basis for identifying and classifying patterns of communication and interaction.

Although the analysis was informed by predefined models of therapeutic relationships, these frameworks were not applied as rigid classification tools. Rather, they were used as sensitising concepts to guide interpretation of relational patterns within patient education encounters. The choice of these models was grounded in their explicit focus on power, participation, and decision-making, which are central dimensions of person-centred education in musculoskeletal care. Importantly, the analysis remained open to variations, overlaps, and tensions between relationship types, allowing the identification of intra-participant shifts, discrepancies between intended and enacted practice, and the absence of certain relational forms (e.g. autonomism). These findings reflect context-specific insights into how novice physiotherapists negotiate educational roles within contemporary Portuguese clinical settings, rather than a mere confirmation of pre-existing categories.

Data analysis followed a systematic and iterative process, carried out independently firstly for each observation and then for its corresponding interview. The researcher (IF) began by watching the first video multiple times to become fully immersed in the data. Observation notes were coded and recorded in a predefined observation guide, capturing relevant behaviours, communicative exchanges, and contextual details. Additionally, specific video excerpts were identified for further exploration during the subsequent interview. These notes and the selected excerpts were discussed with the researcher (CC).

After the first interview being transcribed verbatim, the researcher (IF) read it several times to enhance familiarity. Using colour coding, excerpts were categorised according to the predefined types and

subtypes of therapeutic relationship represented in the analytical framework. Codes were reviewed and discussed with the researchers (RF and CC) and refined to ensure coherence between individual meaning units and the broader interpretive understanding of the data. All coded material was then entered into MAXQDA 2024 to facilitate comparative analysis, generate code statistics, and support reflexive interpretation, which was collaboratively discussed among the three researchers. To enhance transparency, some examples of how categories and subcategories from the deductive framework were operationalised are provided in [Appendix B](#), including representative excerpts from the dataset and corresponding analytic notes.

This process was repeated for each observation–interview pair until the complete dataset was analysed. Although the data was collected in Portuguese, the analysis was carried out in English to facilitate discussion among the research team. Excerpts illustrating the main patterns were selected for inclusion in the findings section, and their translation into English was reviewed by a certified translator. The accuracy was then reviewed by the research team.

To enhance analytic rigour, several strategies were implemented to collectively enhance the credibility, dependability, and confirmability of the findings, ensuring that interpretations remained grounded in participants' perspectives while acknowledging the researchers' reflexive engagement with the data [34–36]. For instance, a reflexive diary was maintained throughout to document analytic decisions, assumptions, and emerging insights [34]. Additionally, researcher triangulation was achieved through iterative meetings among the researchers IF, CC, and RF, who jointly reviewed coding decisions, interrogated alternative interpretations, and contributed to the refinement of categories [34]. Member checking was also undertaken with all participants to confirm the resonance of preliminary interpretations [34]. More specifically, two documents were sent to each participant: the transcript of his/her own interview coded; and the MAXQDA 2024 framework representing the codes assigned to his/her interview. All participants approved the transcription and the respective codes, which were assigned by the research team. Finally, an audit trail documenting coding framework, decision logs, and analytic memos ensured transparency and traceability from raw data to final themes [23,32,36,37].

Considering the research paradigm that informs this study, it is particularly important to consider how the researchers' background may have influenced the interpretation of data. The lead researcher (IF) was a novice physiotherapist, which provided an insider perspective that enhanced contextual sensitivity during data collection. To balance this, the researchers RF and CC, both senior physiotherapy academics with extensive clinical and research experience, offered complementary outsider perspectives during analysis. Regular discussions among the team aimed to support reflexive awareness, minimised interpretive bias, and strengthened the credibility of the findings.

Results

The findings are presented and contextualised by integrating the researchers' interpretations and the participants' validation, after member checking.

After video collection, 199 min of recordings were obtained. At completion of interviews, 290 min of recordings were obtained. The videos sent by the participants had an average length of 19 min (maximum—33 min; minimum—5 min). The interviews were, on average, 40 min long (maximum—65 min; minimum—14 min) ([Table 1](#)).

A total of eight participants submitted videos and participated in a one-on-one interview. The mean age of participants was 25 years (maximum—27; minimum—23), five participants were female and three were male. One participant graduated 1 year before the study, four three years, one four years, and two five years. Two participants had postgraduate training and four were attending it. Five participants worked in private practice, two in outsourced physiotherapy service, and one in a private hospital. All participants worked mostly with patients with musculoskeletal conditions ([Table 2](#)).

All clinical conditions involved persistent pain such as low back pain, neck pain, osteoarthritis, and other persistent pain conditions. None of the videos recorded were a first session with the patients.

The participants practices were labelled according to four types and eight subtypes of therapeutic relationship that support patient education, previously identified by Roussel and Frenay [3]. Each practice could be labelled with more than one (sub)type ([Table 3](#)).

Table 1. Participants' video and interview duration and time between video and interview.

Participant (pseudonym)	Video duration (min; s)	Interview duration (min; s)	Time between video and interview
Lourenço	32 min 39 s	47 min 10 s	11 days
Bernardo	30 min 01 s	65 min	20 days
Alice	28 min 11 s	38 min 45 s	11 days
André	31 min 35 s	34 min 32 s	4 days
Catarina	05 min 01 s	21 min 07 s	10 days
Sofia	33 min 28 s	49 min 19 s	16 days
Mafalda	9 min 13 s	20 min 07 s	42 days
Filipa	28 min 53 s	14 min 46 s	1 day

Table 2. Participants' characterisation.

Participant	Year of graduation	Academic degree	Clinical practice	Patients' clinical condition
Lourenço	2021	Graduate	Private practice	Hip osteoarthritis
Bernardo	2021	Graduate	Private hospital	Chronic low back pain
Alice	2021	Graduate	Outsourced physiotherapy service	Chronic neck pain
André	2021	Graduate	Outsourced physiotherapy service	Achilles tendinopathy
Catarina	2020	Graduate	Private practice	Knee osteoarthritis
Sofia	2019	Master's	Private practice	Chronic low back pain
Mafalda	2019	Master's	Private practice	Chronic neck pain
Filipa	2023	Graduate	Private practice	Chronic neck pain

Table 3. Types and subtypes of therapeutic relationship.

Types	Subtypes
1. Activity-passivity	1.1. Biomedical information 1.2. Instruction aimed at learning actions or understanding mechanisms 1.3. Start of personalisation, life context considered
2. Guidance-cooperation	2.1. Transmission disregarding representations 2.2. Representations explored, subject to possible correction
3. Mutual participation	3.1. Coaching based on pre-existing motivation 3.2. Life-project-based learning 3.3. Trust-based relationship
4. Autonomism	

The results integrate observations of clinical practice with physiotherapists' reflections elicited during interviews, allowing analysis of both enacted behaviours and underlying rationales.

Type 1: Activity-passivity

This observed therapeutic relationship underpinned patient education and involved a one-way delivery of theoretical knowledge, irrespective of what patients already knew or wished to learn. Two scenarios were identified: one in which there was a structured and planned educational intention prepared by the physiotherapist before the encounter, and, at the other extreme, the absence of structure or prior educational intent.

Subtype 1.1: Biomedical information

Some physiotherapists displayed knowledge or identified behaviours they expected patients to adopt but did not consistently provide the underlying rationale during their interactions. The information communicated tended to remain at a superficial level. They spoke in technical terms and focused on a mechanistic view of the body.

"(...) postural issues, quality of movement, the execution of the exercise ehh in general, having a good quality of life, good functionality, in terms of ability to perform a task, and being able to do things that, they didn't maybe have the idea, they could do it (...)" (Mafalda)

Subtype 1.2: Instruction aimed at learning actions or understanding mechanisms

In this subtype some physiotherapists provided information to assist patients in learning a task or comprehending a mechanism. When instructing a technical skill such as exercises, physiotherapists tended to demonstrate them, have patients do them, and correct them, until the exercises were learnt.

"In other words, I think it's important, especially when it comes to exercises, not just to explain or provide a document with exercises, but to actually do them as we explain, so the person can better integrate the exercises. If they have any questions, they can ask, rather than just giving, for example, a document (...)" (Catarina)

Subtype 1.3: Start of personalisation, life context considered

Some physiotherapists integrated aspects of patients' life context and lifestyle in the delivery of education. There appeared to be the beginnings of personalisation and an openness to other dimensions of health beyond physical health. Physiotherapists tended to encourage their patients to be more physically active.

"(...) To show the person that it wasn't just their own problems, their structural issues, their genetics, it wasn't just that. Everything around them also contributed, and especially because the workload was indeed a major issue. (...) That's what I focused on the most, and also aspects like (...) work stress and everything associated with it, such as lack of sleep (...)." (Alice)

Type 2: Guidance-cooperation

In delivering patient education, some physiotherapists considered elements that they had asked to patients, such as knowledge, technical actions in their day-to-day life, and lifestyle habits. According to these physiotherapists, lifestyle habits were collected to personalise education by integrating elements from patients' daily lives or suggesting changes that were acceptable and sustainable for them. Although physiotherapists often considered emotional and motivational aspects, these were not actively addressed or worked on with patients, beyond offering empathy and encouragement.

Subtype 2.1: Transmission disregarding representations

Some physiotherapists assigned to this subtype of therapeutic relationship systematically explained the reasons for the diagnosis and the benefits of the advised way of doing daily activities. They seemed to communicate without taking into consideration what patients already knew or checking if they were prepared to learn the information provided.

"OK, here the aim was to manage expectations, as I previously mentioned, this patient had this condition for a long time. And, and it wasn't expected, at least according to what (...) According to the literature, these types of tendon conditions are not expected to recover easily. (...) I didn't want to take away hope that the patient would get better. I prefer these expectations to be lower rather than later lead to frustration and abandonment of the treatment (...)" (André)

Subtype 2.2: Representations explored, subject to possible correction

Some physiotherapists sought to gather patients' understanding, such as what their condition meant for them, and then confronted these views with scientific facts in an attempt to 'correct' them. They also explored patients' knowledge and beliefs by using open-ended questions.

"In other words, at the moment, I first try to create a space without many restrictions so that the person can start communicating on their own. Ehh as they speak, I try to address the points I have studied and know I need to discuss in a way that I think the person will want to hear and will be able to listen to more attentively. So, whenever opportunities arise for me to emphasise certain moments again, that's what I do." (Alice)

Type 3: Mutual participation

For the physiotherapists assigned to this type of therapeutic relationship, patient education typically began with the investigation of patients' prior knowledge, skills, and beliefs, gathered through active approaches. Motivation and psychosocial factors were questioned and discussed as part of the education session.

Subtype 3.1: Coaching based on pre-existing motivation

Some physiotherapists often assessed patients' motivation to determine whether factors, such as internal motivation, were present to optimise patient education. When patients did not understand information provided, these physiotherapists repeated it by modifying their approach: using simpler terms, other

methods (such as graphs), or metaphors. A few physiotherapists also worked on raising patients' awareness about specific behaviours, such as sedentarism.

"(...) during the session, what I focus on the most with the patient is (...) pacing strategies and social participation strategies. Often, these individuals reveal lack of social participation and physical activity, so I attempt to foster strategies that promote greater social participation. (...) for example, a person who has an elevator and who lives on the third floor, I try to ask them to walk up to the first floor, for example, and then take the elevator on the first floor to the third (...)" (Lourenço)

Subtype 3.2: Life-project-based learning

Some physiotherapists focused on helping patients to progressively develop autonomy in their health decision-making. They facilitated the emergence of patients' life project and goals through interrogative methods, using open-ended questions. Physiotherapists sought to understand what patients already knew about their pain or clinical condition through questioning. Professional knowledge and specific instructions were not considered to be a priority unless patients requested them. Some participants tried to deconstruct the patients' representations of their clinical condition and what they should do to improve it, encouraging them to adopt alternative strategies while considering what patients liked and wanted to achieve.

"Therefore, I took a position in wanting to promote autonomy so that the patient could manage the condition in a more independent way. Thus, the simple messages I wanted to convey were always aimed at ensuring the person learns then to continue doing the exercises or manage the situation in the future (...)" (André)

Subtype 3.3: Trust-based relationship

Some physiotherapists delivered patient education based on the patients' desires and goals. Physiotherapists viewed the patients' health problem as the one they considered to be the issue, and the patients' interpretation about this problem was taken into consideration. Some physiotherapists endeavoured to identify the underlying cause of the problem by asking patients how they felt about their problem. Health behaviour goals and learning needs were co-decided considering what was possible for, and desired by, patients.

"That is, what she identified... for example, at home she mentioned that she had difficulty storing Tupperware in a low cabinet (...) we found strategies for her to do it, either by changing her movements or adapting the way she could perform the movement, or by giving strategies (...)" (Sofia)

Overview of variations in practices among participants

Most physiotherapists exhibited and reflected upon characteristics of more than one practice type of therapeutic relationship underpinning patient education, meaning that, for example, a single physiotherapist could be assigned to both type 1 and type 2. Figures 1 and 2 summarise the distribution of therapeutic relationship types identified across video observations and interviews. The consistent colour code (yellow/orange=activity-passivity, green=guidance-cooperation, blue=mutual participation) represents a continuum from physiotherapist-centred to person-centred practices. Together, these figures illustrate both inter-participant differences and intra-participant variations, suggesting that novice physiotherapists shift among relationship approaches.

Discussion

The findings of this study suggest that participants' therapeutic relationships and subsequent educational practices fall on a continuum between an activity-passivity approach (type 1) and a mutual participation approach (type 3). Five out of eight participants were primarily assigned to an activity-passivity (type 1) and guidance cooperation (type 2) approaches, which tend to align with physiotherapist-centred models of practice. This latter trend has been supported by existing literature that suggests physiotherapists tend to follow educational approaches that do not promote patients' engagement and active

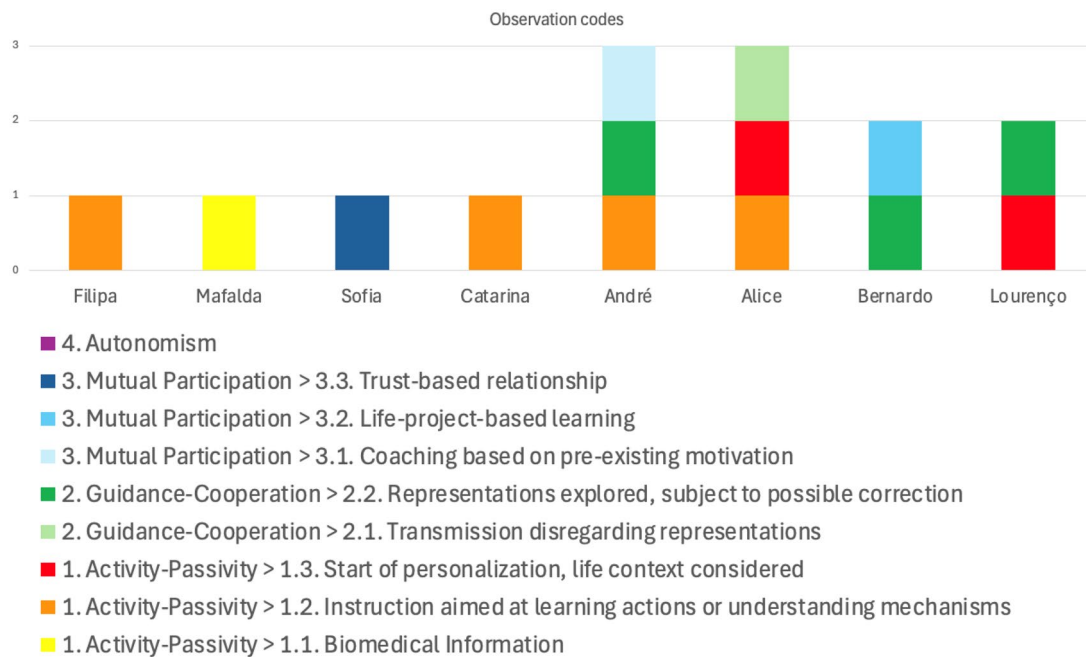


Figure 1. Participant's observation codes.

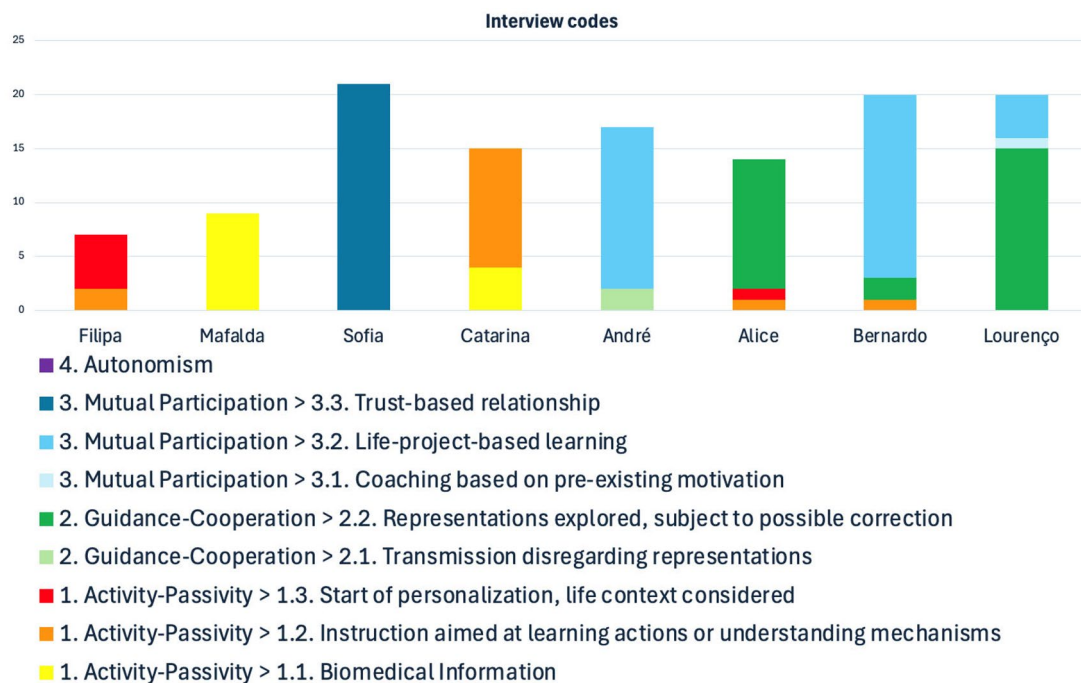


Figure 2. Participant's interview codes.

participation in their rehabilitation process [10,38]. However, it is noteworthy that contemporary recommendations for clinical practice have been increasingly shifting towards a more person-centred approach, as reflected in relevant research [1–4]. This shift indicates an increasing recognition of the importance of patient engagement and shared decision-making in therapeutic settings, as demonstrated by three participants in this study who were primarily assigned to an approach based on mutual participation (type 3). Importantly, these findings illustrate not only what novice physiotherapists do in practice, but also how their educational approaches are positioned along a relational continuum shaped by professional norms and contextual constraints.

The educational practices observed in this study reflect the power dynamics within the physiotherapist–patient relationship and were interpreted using established models of therapeutic relationships as sensitising analytical lenses rather than as rigid classificatory frameworks. While the typology of patient education practices is not entirely new, this study provides an empirical evaluation of the theoretical models proposed by Szasz and Hollender [18] and Botelho [19] as applied to novice physiotherapists' clinical practice. The typology of therapeutic relationships underpinning patient education proposed by Roussel and Frenay [3] was applied for the first time to explore Portuguese novice physiotherapists' delivery of patient education, providing an overview of practices ranging from physiotherapist-centred to person-centred orientations. Autonomism, a type that is considered rarer in healthcare delivery [3], was not observed in the videos sent by participants nor referred in the interviews. Szasz and Hollender [18] identified mutual participation as especially suited to chronic conditions and recent literature supports this view, indicating that practices like mutual participation foster person-centred care by promoting patient motivation, addressing psychosocial factors, and enhancing decision-making autonomy [39–41]. The absence of autonomism across the dataset warrants careful consideration. Rather than representing an isolated pattern, this may reflect broader features of Portuguese physiotherapy culture, in which the physiotherapist is typically positioned as the primary decision-maker and source of expertise [42]. Such expectations can implicitly discourage more equalised forms of interaction in which patients assume greater agency over educational processes. This finding is also consistent with previous research on the Portuguese novice physiotherapists that highlighted difficulties in managing barriers to use patient education practice and in addressing complex conditions [14]. The absence of autonomism in this study therefore suggests that both clinical culture and, possibly, current training practices may reinforce physiotherapist-led models, limiting opportunities for novice physiotherapists to engage with person-centred or autonomy-supportive educational practices. Applying these models to observed clinical interactions revealed not only their continued relevance but also their limitations in fully capturing the fluid, situational, and negotiated nature of patient education practices among novice physiotherapists.

The results of this study indicate that, although there were intra-participant shifts among (sub)types of therapeutic relationship during their videos and interviews, the primary type of therapeutic relationship established with the patient remained consistent for all participants. For example, a participant that was mainly assigned to type 1 in the video was also mainly assigned to type 1 in the interview. Despite this, there were two kinds of variations uncovered: variations within a type and variations between types, both in videos and interviews. The use of two methods of data collection enabled a deeper understanding of these variations, as interviews revealed instances where participants implemented educational practices that did not align with their own ideals or with their descriptions of intended practice. The observed variation between intention and practice should not be interpreted as inconsistency or lack of competence. Instead, it may illustrate the challenges novice physiotherapists face when attempting to operationalise person-centred principles within time-pressured, protocol-driven settings. As highlighted by previous research, early-career physiotherapists often intend to adopt collaborative communication strategies but may revert to directive behaviours due to professional insecurity, workload, or contextual expectations [6,11]. These findings, therefore, reveal the complexity of translating theoretical ideals into real clinical practice rather than a simple gap between knowledge and action. Furthermore, when considered through an interpretivist lens, these findings suggest that patient education is an ongoing process of meaning-making shaped by both the physiotherapist and the patient. This variability suggests that the predefined relationship types functioned as flexible interpretive reference points, allowing patterns to be explored while remaining attentive to contextual and interactional nuances emerging from the data. In this sense, the study extends existing theoretical frameworks by demonstrating how traditional models of therapeutic relationships are enacted, negotiated, and sometimes constrained in early-career physiotherapy practice. Even directive strategies involve relational negotiation, reflecting the interpretivist view that knowledge is situated and co-created through interaction.

These findings have direct implications for physiotherapy education, mentorship, and early professional development. The predominance of directive, physiotherapist-led strategies suggests that current curricula may not sufficiently prepare students to engage in shared decision-making, relational communication, or autonomy-supportive educational practices. Drawing on both the observed practices and participants' reflections during interviews, several factors may help explain why physiotherapist-centred

educational practices predominated among novice practitioners. First, early-career physiotherapists often rely on protocol-driven, biomedical frameworks as a source of professional security, particularly when managing complex or persistent musculoskeletal conditions. Second, organisational constraints such as limited consultation time, productivity pressures, and expectations of technical expertise may implicitly reinforce directive communication styles. Finally, professional socialisation during training may prioritise clinical reasoning and technical competence over relational and pedagogical skills, making it more challenging for novice physiotherapists to operationalise person-centred education in practice. Strengthening training in these areas, through simulation, reflective practice, and supervised clinical exposure, could help bridge the gap between person-centred ideals and early-career practice [43,44]. Likewise, continuing professional development opportunities that focus on communication, negotiation, and patient empowerment may support novice HCPs in moving beyond information-giving approaches and developing more collaborative educational skills. By addressing these gaps, both undergraduate and postgraduate education could play a crucial role in fostering more participatory models of patient education in musculoskeletal clinical settings.

Some limitations should be considered when interpreting the findings. Firstly, the small sample size ($n=8$), drawn from a single national and professional context, and the voluntary nature of participation may have introduced selection bias, as physiotherapists with a particular interest in communication and patient education may have been more likely to participate. This self-selection may have resulted in an overrepresentation of more reflective or education-oriented practitioners and may have limited the breadth of educational practices observed, thereby constraining the transferability of the findings to the wider population of novice physiotherapists working in musculoskeletal clinical settings. Additionally, although participants represented a range of musculoskeletal conditions, the use of single-session video observations provides only a snapshot of routine practice and may not fully capture the variability of educational encounters over time. An additional limitation relates to the video-elicitation methodology, namely the fact that physiotherapists selected which clinical session to record. This self-selection may have influenced the data by encouraging the recording of sessions perceived as more representative, successful, or aligned with participants' ideals of good practice. As a result, the observed interactions may not fully reflect the range of challenges, uncertainties, or less effective educational encounters that occur in routine clinical work. However, the subsequent video-elicitation interviews partially mitigated this limitation by enabling participants to critically reflect on their actions, intentions, and perceived constraints, including instances where practice diverged from their ideals. This reflexive dialogue provided insight not only into what was enacted, but also into how participants made sense of their educational practices within contextual and professional constraints. In line with the interpretivist and ethnographic orientation of the study, the concept of data saturation is therefore understood as a pragmatic and context-bound judgement rather than as an indication that all possible forms of educational practice were exhaustively captured. Accordingly, the value of this study lies not in the breadth of variation observed, but in the depth of insight gained into how patient education is enacted and rationalised by novice physiotherapists within a specific cultural and professional context. Nevertheless, the ethnographic and video-elicitation design enabled a rich and situated understanding of real-world communication behaviours, supporting the credibility and relevance of the findings.

Future research that follows physiotherapists throughout the rehabilitation process, from the first to the final session, could be valuable in understanding the implementation of patient education across a continuum of care. Larger-scale studies on variables such as years of practice, clinical context, and the academic level of physiotherapists could help determine whether these characteristics influence education delivery. Finally, exploring other research questions, such as the prevalence of each type and subtype in the clinical setting, and investigating whether and how autonomism is practiced by physiotherapists, could provide further insights.

Conclusion

In conclusion, this study offers valuable insight into how Portuguese novice physiotherapists deliver patient education in musculoskeletal settings. Findings suggest that educational encounters remain largely physiotherapist-led, with limited evidence of shared decision-making or patient empowerment. To

support a transition towards genuinely person-centred education, training programmes should emphasise skills in communication, negotiation, and patient engagement from the outset of professional formation [45–47].

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Appendices

Appendix A. Semi-structured interview schedule

Framing topics

1. Welcome and thank the participant for sending the video and for their availability.
2. Introduction of the researcher responsible for the interview.
3. Reinforcement of the aspects mentioned in the study's explanatory letter and confirmation of informed consent.
4. Contextualisation regarding education as a therapeutic modality in the treatment of patients with musculoskeletal conditions, presenting the models that underpinned the observations.
5. Presentation of the procedures to be adopted during the interview—observation of selected video excerpts and presentation of questions aimed at gaining an in-depth understanding of clinical practice regarding patient education.

Physiotherapist characterisation questions

- Age
- Time since graduation
- Description of the work context

Questions based on video observation

1. In what way was this treatment session similar to or different from a typical session you conduct with patients with this clinical condition?
 - If this is not a typical session, what made it different?
 - What aspects, if any, are common to the treatment you provide to all patients with this clinical condition?
 - How would you describe your clinical reasoning process? That is, could you tell me step by step how you arrived at this educational strategy? How did your thought processes evolve?
2. What do you consider to be your role as a physiotherapist in the educational sessions with this patient?
 - When you think about educational sessions, how would you describe yourself as a physiotherapist?
 - What do you think was important to do or say to this patient, in relation to education?
 - What do you think the patient needs or expects from you?
 - During the session, what do you try to ensure that patients learn or acquire?
 - Why do you think education is important?
3. What were the main difficulties, if any, that you experienced in terms of education during this session?
 - Do you think there are elements in this patient that influenced the way you practised education?
 - Do you think there are elements in your own performance that influence the way you practise education?
4. What aspects, if any, do you think facilitated the education/educational session with this patient?
 - Do you think there are elements in this patient that influenced the way you practised education?
 - Do you think there are elements in your own performance that influence the way you practise education?

5. In what way do you consider that the therapeutic relationship established with this patient had an impact on or influenced the educational session?
 - What elements do you consider important in the therapeutic relationship?
 - What was your perception of this patient?
6. Now focusing on the video, let's watch this video excerpt I will play ...
7. I would now like to move on to the next video segment.
8. Moving on to the next video segment ...
9. In the next segment ...
10. Now moving on to the final video segment ...

Probing questions

- I would like you to describe the purpose of your words in this video segment.
- What in this patient showed you that this intervention would be effective?
- What were you aiming to achieve with this patient here? What objectives did you have?
- How did you know you should try it this way? Where did you learn that?
- How does what you are saying in this segment compare to what you said in the previous one?
- When do you choose to do ... instead of ... ?
- You mentioned ... could you explore that in more detail?
- Earlier you talked about ... why do you consider that important?
- Could you give me some examples?

Appendix B. Coded excerpts gathered with coding colours, excerpts, and notes

Table A1 presents examples of how categories and subcategories from the deductive framework were operationalised, including representative excerpts from the dataset, notes taken and colour codes used.

Table A1. Excerpt of coded excerpts gathered with coding colours, excerpts and notes.

Type	Subtype	Excerpts (translated)	Notes
1. Activity–passivity	1.1. Biomedical Information	<i>"Relieving muscle tension, stretching the muscles (...) also strengthening. Then I did a strengthening exercise afterwards, and of course giving some advice."</i> (Catarina, 348–352)	When I asked the participant what her main goals were at that point in the session, this is what she said.
	1.2. Instruction aimed at learning actions or understanding mechanisms	<i>"(...) in the end, I usually give some exercises, give some advice so that the person can manage their condition better. Yes, I tend to use this method consistently."</i> (Catarina, 59–61)	When I asked whether this was a typical treatment session she conducts with patients with this condition, this was her response
	1.3. Start of personalisation, life context considered	<i>"(...) to show the person that it wasn't just about their own problems, or their structure, or their genetics—it wasn't only that. It was also everything around them, and especially what was really a major issue in this case, which was their workload.(...)"</i> (Alice, 163–181)	When I asked the physiotherapist what she felt was important to do or say to this patient regarding patient education, this was her response.
2. Guidance-cooperation	2.1. Transmission disregarding representations	<i>"OK, here it was to modulate expectations, as I said earlier, this patient had had this condition for a long time. And it was not expected, at least from what... from what the literature has been telling us, it is not expected that these... these types of tendon conditions recover easily either. (...)"</i> (André, 418–420)	This was her response after being asked about a segment of the video in which, after inquiring about the patient's expected recovery time, the physiotherapist explains that 'based on what is known, during at least the first three months of intervention or treatment, no changes are expected. They may occur, and if they do, we can celebrate them, but (...) it is a long-term process.