

First-contact physiotherapists' perceived competency in a new model of care for low back pain patients: a mixed methods study

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ABSTRACT

Background: A new advanced practice model of care enables French physiotherapists to perform medical acts for low back pain (LBP) patients as first-contact physiotherapists (FCPs).

Objective: The aim of this study is to determine the self-perceived competency of FCPs and to further explore factors underpinning this feeling.

Methods: A mixed-methods explanatory sequential design was conducted. A survey was used to self-assess the perceived competency of FCPs in performing medical tasks. Semi-structured interviews were then performed to explore determining factors of perceived competency. Inductive thematic analysis was performed.

Results: Nine FCPs answered the survey and were interviewed (mean age 40.1, standard deviation [SD]: ± 10.0). FCPs felt very competent with making medical diagnosis (3.44/4, SD: ± 0.53), analgesic prescription (3.11, SD: ± 0.78) and referring onward to physiotherapy (3.78, SD: ± 0.55). They did not feel competent with nonsteroidal anti-inflammatory drug prescription (2.78, SD: ± 0.67) and issuing sick leave certificate (2.67, SD: ± 1.0). The main identified influencing factors were previous FCPs' experience, training, knowledge, collaboration with family physicians, high responsibility and risk management associated with decision-making.

Conclusion: French FCPs appeared to have the necessary skills to directly manage LBP patients without medical referral. Future training focusing on analgesic prescription and issuing sick leave certificate is however needed.

Keywords: Advanced practice physiotherapy roles, First-contact physiotherapists, Medical acts, Mixed methods, Perceived competency, Training strategies

What is already known about this topic?

- First-contact physiotherapy is an effective and emerging model of care where advanced practice physiotherapists working in family health teams diagnose and manage patients, including traditional medical acts such as autonomous prescriptions of medications.

What does the study add?

- French first-contact physiotherapists in this study reported feeling competent to directly manage patients without medical referral. They, however, needed further training to feel completely competent with medication prescription and issuing sick leave certificate.

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Introduction

Musculoskeletal disorders (MSKDs) affect hundreds of millions of people around the world and can lead to temporary or lifelong disabilities and limitations in participation (1-4). Among MSKD, low back pain (LBP) is the major cause of long-term pain and disability worldwide (3,5-7). The reported lifetime prevalence of LBP is about 40% based on a survey of 54 different countries (8). In France, LBP is the second most

common reason for consulting in family practice (9). While 90% of patients recover within 4-6 weeks following the first pain onset, chronic LBP is the third leading cause of disability and the first cause of occupational disability before the age of 45 in France (9). The early identification and management of patients at risk of poor prognoses represents a major challenge for the healthcare system.

Primary healthcare services in France are reaching a saturation point, and patients are experiencing important delays to access care (10). Considering the aging population and the increasing shortage of physicians, family physicians' burden is expected to continue to increase in the coming decades (3,11). To offer better access and to help reduce physicians' workload, new collaborative care pathways entitled "cooperation protocols" are emerging in French multidisciplinary primary healthcare centers. These models emphasize more autonomous roles for nonmedical healthcare practitioners using task shifting within family healthcare teams (12).

One of these models involves physiotherapists for the management of acute LBP patients. Since the publication of the official legislative text in 2020, the initial LBP consultations can be transferred from family physicians to physiotherapists working within the same multidisciplinary healthcare center (13). Eligible patients aged 20 to 55 years suffering from acute LBP may consult the physiotherapist instead of the family physician. This model expands the usual scope of practice of French physiotherapists, allowing them to work as first-contact practitioners in advanced practice roles (14,15). As described in the United Kingdom, first-contact physiotherapy (FCP) is an emerging advanced physiotherapy practice model of care where physiotherapists working in family health teams diagnose and manage patients while that may include traditional medical acts such as autonomous prescriptions of medications (14-16). In the French model, the FCP's role is to diagnose LBP, issue medical sick leave certificates, prescribe low-class analgesic medications (paracetamol or oral anti-inflammatory drugs) and refer patients for additional outpatient physiotherapy in another place if required. This registered healthcare pathway is nonetheless still coordinated by family physicians. The involved FCPs ensure that any necessary information regarding the medical management of patients is accurately conveyed to family physicians (13). Such pathways do match the globally accepted definition of advanced physiotherapy practice models and represents a significant change, as patients in France are traditionally referred by family physicians to the physiotherapist who are not autonomous first-contact providers (17,18).

Our team previously conducted a study regarding physiotherapists' and family physicians' acceptability of this new model prior to its implementation (19). The results highlighted a positive perception of physiotherapists' competencies and skills to adequately manage patients with LBP from the physician's point of view. This study also reported that before the implementation of the FCP model, physiotherapists did not unambiguously feel confident in their ability to perform medical tasks, especially regarding the prescription of oral nonsteroidal anti-inflammatory drugs (NSAIDs) or issuing sick leave certificates (19). Family physicians and physiotherapists who

finally set up the new FCP model received a 10-hour inter-professional training. The goal of this training was to enable physiotherapists to acquire the competencies for managing patients with LBP as primary contact practitioners, to acquire adequate competencies for red flag identification and patients' referral to physicians, to prescribe appropriate medication and issue sick leave certificate, as well as suitable referral for additional outpatient physiotherapy. Exploring the acquisition of these advanced competencies by physiotherapists working within the new FCP model both helps ensure the quality and safety of this new model and enables a better tailoring of the training provided to physiotherapists.

A successful FCP advanced practice role requires a combination of competencies and skills that can be shaped by perceived self-efficacy (20,21). The self-efficacy theory was developed by Bandura and is defined as an individual's belief in his ability to succeed in a specific task or situation (20). It has been identified as the strongest predictor of clinical performance (22-24). Previous clinical performance experience is one of the principal sources of influence for self-efficacy (20). The French physiotherapists' confidence in performing medical tasks has been evaluated prior to the implementation of the new pathway and we assumed that the said confidence could have changed with working overtime in this new advanced model of care (19,20,25). Given the potential of evolution of the French physiotherapists toward more autonomous advanced practice roles, there is a need to document their acquisition of advanced competencies and skills. The aims of this study are therefore to determine the self-perceived competency of FCPs in their advanced practice role for LBP patients and to further explore factors that influence such perceptions.

Methods

Design

We used a mixed-methods explanatory sequential design to address the research aims. The explanatory sequential design provided the opportunity to collect initially emerging insights from cross-sectional quantitative data and help further explain the results through semi-structured interviews (26,27). This design enabled us to combine both quantitative and exploratory qualitative data so as to provide a deeper insight into how physiotherapists perceive their ability to perform the aforementioned medical tasks (28,29).

Measures

Self-efficacy measure

There is no published instrument to measure healthcare professionals' perceived competency in performing shifted or delegated medical tasks. We therefore designed a tool to measure this construct. This tool took the form of a survey. Its development was guided by Bandura's theory on self-efficacy scale construction guidelines and previous similar studies evaluating self-efficacy and healthcare professionals' perceived competencies using mixed-methods study designs (30-32). We first identified the five medical tasks performed



by physiotherapists in the new pathway that were not part of their usual scope of practice: medical diagnosis, analgesic prescription (acetaminophen), NSAID prescription, sick leave certificate issuance and outpatient physiotherapy referral prescription. The identification of red and yellow flags, respectively signs and symptoms of serious pathologies and psychosocial risk factors for a poor prognosis, was also added to the items. Although red and yellow flags are examined by physiotherapists when receiving patients referred by family physicians, a deeper consideration needs to be given to these tasks in a primary contact role.

The tool was composed of seven items. Each item of the survey assessed one task: medical diagnosis, analgesic prescription (acetaminophen), NSAID prescription, sick leave certificate issuance, outpatient physiotherapy referral prescription, red flag identification, yellow flag identification. The items consisted of a 4-point Likert-type rating scale, ranging from 1 (*not at all competent*) to 4 (*extremely competent*) to self-assess the perceived level of competency of physiotherapists in performing the identified tasks.

Interview guide

Following a review of relevant literature, an initial semi-structured interview guide was developed by one author (E.V.) and completed by a second author (A.K.). Adaptations were made based on the second author's feedback. The interview guide aimed to explore the determining factors of FCPs' perceived competency regarding each task identified in the survey. The interview guide focused on FCPs' experiences and perceptions regarding the activities they carried out, factors that positively or negatively influenced their perceived competency and potential evolutions for the new model of care. Relevant literature and the Consolidated Criteria for Reporting Qualitative Research (COREQ) were considered in the designing of the guide and results' reporting, to ensure the findings' credibility and transparency (33-35).

Participants

To be included, physiotherapists had to work in a multidisciplinary primary healthcare center in France that had set up the FCP advanced model for acute LBP patients' care, having completed the required interprofessional training and having taken care of at least one LBP patient within the FCP pathway. The study was conducted between January and March 2023, one year after the implementation of the model in the primary healthcare centers.

Because of the barriers to the implementation of the model we previously identified in an acceptability study, we anticipated a low deployment of the FCP model in France and thus a relatively small sample size for both qualitative and quantitative steps (19). Efforts were made by the researchers so that all potential participants who met the inclusion criteria in France were contacted. All eligible and voluntary participants were included in the study. All included participants took part in both quantitative and qualitative components of the study using an identical sample strategy for sequential design (29).

Procedures

Participants were identified through the research team's network, by contacting the regional health agencies in each region of France and through the French federations for multidisciplinary primary healthcare centers. Potential participants were contacted by email. The email detailed the aim of the study and mentioned the voluntary participation of physiotherapists. Voluntary participants were asked to complete the informed consent through an electronic standardized form before each interview. An email including a link to complete the online survey was sent to the participants using *LimeSurvey*, a web platform secured by data encryption protocol and hosted by the Grenoble-Alps University server. Individual interviews were conducted virtually (Zoom) by the same research assistant that made initial contact with participants when the online survey was completed in the same day the participant answered the questionnaire. The research assistant used active listening techniques. She did not conduct previous interviews but had a formal university training in qualitative methodology of approximately 10 hours taught by the Physiotherapy Department of Grenoble-Alpes University (34). To profile interviewees, participants' demographic characteristics were collected prior to the interview.

Data analysis

The survey data were anonymized and transferred into a Microsoft Excel spreadsheet. Descriptive analysis was performed for all quantitative data.

Interviews were audio-recorded and transcribed verbatim immediately after the interview. Transcripts were anonymized. Based on the Braun and Clarke process, a thematic analysis of the interviews was performed by the research assistant who conducted the interviews (E.V.) and a physiotherapist researcher (A.K.) (35). QCAmap software was used for this analysis. Both researchers familiarized themselves with the transcripts and independently set up an initial set of codes for the first two interviews using an iterative approach. Discrepancies between the two code sets were reviewed and a final set of codes was defined. The final code set was then applied by one researcher (E.V.) to the seven remaining interviews. Final themes were identified following ongoing critical discussion between researchers (E.V. and A.K.) until a consensus was reached. Throughout the process, data transferability was ensured by documenting the context of the fieldwork so that another reader would be able to decide whether the findings could be applied to another setting (36). It was a major focus that the findings emerged from the data and not from the researcher's perception to ensure their reliability (36).

Results

Participants' description

Nine physiotherapists were included in the study for both quantitative and qualitative data collection (mean age 40.1, standard deviation [SD]: ± 10.0). One physiotherapist declined



TABLE 1 - Characteristics of the participants (n = 9)

| Physiotherapist | Age | Year of graduation | Experience in multidisciplinary healthcare center (years) | FCP model training duration (hours) | Experience with the FCP model (months) | Number of LBP patients managed in the FCP model |
|-----------------|-----|--------------------|---|-------------------------------------|--|---|
| PT1 | 28 | 2016 | 3 | 6 | 8 | 1 |
| PT2 | 57 | 1989 | 10 | 10 | 8 | 5 |
| PT3 | 34 | 2010 | 7 | 5 | 10 | 8 |
| PT4 | 41 | 2005 | 8 | 10 | 7 | 4 |
| PT5 | 46 | 1998 | 2 | 10 | 10 | 3 |
| PT6 | 36 | 2008 | 2 | 10 | 10 | 4 |
| PT7 | 26 | 2020 | 1 | 10 | 11 | 5 |
| PT8 | 45 | 2001 | 9 | 4 | 3 | 5 |
| PT9 | 48 | 1998 | 6 | 10 | 2 | 1 |

FCP = first-contact physiotherapist; LBP = low back pain; PT = physiotherapist.

to participate because she was not available for an interview during the study period. Participants’ mean experience duration with the FCP pathway was 7.6 months (SD: ±3.2). FCPs had managed one to eight patients within the model of care prior to this study (mean: 4.0, SD: ±2.2). Characteristics of the participants are presented in Table 1.

Self-perceived competency measure

FCPs felt very competent with making medical diagnosis (3.44/4, SD: ±0.53), analgesic prescription (3.11, SD: ±0.78) and referring onward to another physiotherapist for further rehabilitation (3.78, SD: ±0.55). They did not feel competent with NSAID prescription (2.78, SD: ±0.67) and sick leave certificate issuance (2.67, SD: ±1.0). Results of the questionnaire are presented in Table 2.

TABLE 2 - FCP self-perceived competency in performing tasks in the new model of care (n = 9)

| How competent do you feel when performing the following medical tasks?* | Mean (SD) | Min-Max | Median |
|---|-------------|---------|--------|
| Red flag identification | 3.33 (0.71) | 2.0–4.0 | 3.0 |
| Yellow flag identification | 3.22 (0.67) | 2.0–4.0 | 3.0 |
| Making a medical diagnosis | 3.44 (0.53) | 3.0–4.0 | 3.0 |
| Analgesic prescription | 3.11 (0.78) | 2.0–4.0 | 3.0 |
| NSAID prescription | 2.78 (0.67) | 2.0–4.0 | 3.0 |
| Sick leave certificate issuance | 2.67 (1.0) | 1.0–4.0 | 3.0 |
| Physiotherapy referral | 3.78 (0.55) | 3.0–4.0 | 4.0 |

FCP = first-contact physiotherapist; NSAID = nonsteroidal anti-inflammatory drug; SD = standard deviation.
 *1—not at all competent, 2—not very competent, 3—very competent, 4—extremely competent.

Qualitative interviews analysis

Nine semi-structured interviews were conducted to allow a better understanding of FCPs’ perceived competency, influencing factors and readiness to practice in the new FCP model of care. Four main themes were identified: (1) experiences, knowledge, and training are determining factors of FCPs’ perceived competency; (2) collaboration with family physicians seems to favor FCPs’ perceived competency; (3) higher responsibility and risk management may be associated with lower perceived competency; and (4) formal training and modification of the FCP model could improve FCPs’ perceived competency.

Theme 1: Experience, knowledge and training are determining factors of FCPs’ perceived competency

Similarities with their usual scope of practice increase FCPs’ competency

Previous experience related to the usual scope of practice of FCP was mainly reported as a major influencing factor of perceived competency for the participants. When medical shifted tasks were quite close to the physiotherapist’s everyday tasks, their feeling of competency was reported as high as reported for diagnosis: “ I’m quite confident, I’m not very worried about diagnostic errors, it’s part of my everyday job” (PT4); “I actually feel even more competent than a physician in the diagnosis of low back pain” (PT3).

Regarding red and yellow flag identification, participants also attributed their high perceived competency to their clinical experience: “Given the experience I have with low back pain patients, and within one hour of interviewing and consulting, I feel there are many things I’m capable of identifying” (PT3); “This flag system [...], we use that every day” (PT8).



Regarding physiotherapy referrals, participants stated that "My experience and initial assessment allow me to know easily whether or not it is relevant to prescribe further physiotherapy sessions to patients" (PT3); "With the experience I have, I know if the patient needs physiotherapy and a follow-up consultation or not" (PT9).

When evaluating the ability to return to work of patients with LBP, one participant reported being used to "assessing biomechanical factors, psychological factors and deciding whether or not they are compatible with work on a given day" (PT4). Inexperience was mentioned as a factor for a lower self-efficacy associated with NSAID prescription: "we tend, as physiotherapists, to tell patients to take paracetamol to ease the pain, whereas we rarely recommended NSAIDs to our patients, [...] it's something we never did before" (PT8).

FCPs' lack of experience with the new model of care

Participants reported that the experience acquired with the FCP pathway contributed to determine their confidence in performing medical tasks. For most of the physiotherapists, the lack of exposure to clinical consultations in the FCP model resulted in a low perceived competency regarding tasks that differed highly from their scope of practice, even if they did not consider the tasks to be complex or challenging "I haven't done it enough [NSAI drugs prescriptions] to feel comfortable with it yet" (PT4); "Regarding drug prescription, it's just a lack of practice in my opinion" (PT5); "Clearly, my experience is growing, ehm, to shift from rather competent to fully competent, that's it" (PT9).

Knowledge and training for medication prescription are insufficient

Participants expressed concern with insufficient knowledge and training regarding the analgesic use and oral NSAID contraindications: "I am not trained with regards to the very developed pharmacopoeia" (PT3); "I don't know the exact nature of the substances I prescribe" (PT9); "Well, there certainly are other more important contraindications to NSAIDs [...] that I don't know of" (PT4); "I am clearly not trained enough regarding pharmacological interactions" (PT6). One participant however expressed "Because it was taught during the training, I feel rather competent" (PT7).

Theme 2: Collaboration with family physicians seems to favor FCPs' perceived competency

Interprofessional collaboration fosters FCPs' perceived competency

Collaboration with family physicians was explicitly identified by FCPs as a facilitator impacting positively their feeling in FCP model of care: "I find it quite stressful if the physicians aren't next door" (PT6); "The discussion, the coordination with physicians is very easy. I feel competent because I dare to go ask for information if there is an issue" (PT6).

Some participants expressed the need to be further supervised and to receive additional feedback from family physicians: "I think it could comfort me on whether I made

the right choice or not, if the physician tells me I did right, whether there is a sick leave or not" (PT9).

FCPs and family physicians cope with common challenges

Several participants felt reassured knowing that family physicians encounter similar difficulties with decision-making for sick leave certificates and medication prescription: "There is a similar difficulty, that's shared with the physicians, because they go through the same thing"; "they says themselves that they do this approximately, a bit roughly and very much depending on the patients' requests" (PT3); "Physicians are no more competent than we are, in their capacity to know whether or not they should prescribe one or the other, and at which dosage" (PT3); "Even for physicians it is not always clear and they hesitate" (PT5).

Theme 3: Higher responsibility and risk management may be associated with lower perceived competency

Perceived competency is influenced by the level of risk and responsibility

According to most participants, the perceived level of competency with the new medical tasks was reported to be associated with the perceived level of risk when performing the task: "I can never declare myself to be competent because I think we are given an important, a huge responsibility" (PT6); "There are other risks so I'm always a little bit afraid of making a mistake and missing something, of not asking the patients the right question" (PT7).

Low risk associated with inappropriate sick leave certificate issuance seemed to favor a higher level of confidence for FCPs. However, the undesirable effects and potential contraindications associated with NSAIDs use were associated with lower confidence of participants: "Well, I feel that I am not competent enough on the matter, to clearly know if I haven't missed a contraindication" (PT6); "There is an additional apprehension regarding NSAIDs because [...] there are more potential consequences" (PT5).

The physiotherapists stated that "additional responsibility" (PT4) associated with "the risk of missing something serious" (PT7) was a barrier to feeling fully competent with their new advanced roles.

Clear guidelines may facilitate clinical decision-making

Participants reported that they would feel more confident in their clinical decision-making process if clear guidelines were available. Regarding the duration of sick leave and analgesic dosage, participants expressed a lack of formal recommendations leaving them with the following questions: "Why do I prescribe a one-day sick leave, why three? Why five?" (PT8); "What is the right dosage for pain killers or NSAIDs?" (PT3).

The FCP model however provided participants clearer recommendations regarding additional physiotherapy referral: "The decision criteria to decide whether or not we prescribe rehabilitation [...] Actually they are defined clearly enough so that I can settle on whether or not I prescribe it" (PT3).



Theme 4: Formal training and modification of the FCP model could improve FCPs' perceived competency

Formal educational training is needed

Participants believed that additional extensive educational training about pharmacological prescription and drug safety use is needed to help them become more confident with the prescription of oral analgesic and NSAIDs: "I think we need more formal training on pharmacological matters. I talked about it with family physicians and pharmacists, I took some medical courses, but I did not get exhaustive training on that topic" (PT4). One participant suggested that this training should be associated with regular clinical case presentations so that physiotherapists could update their knowledge and skills.

The FCP model framework should be more flexible

Even if the framework for the FCP model of care was reported to facilitate and help decision-making by most of the participants, one of them felt that the model of care framework definition (eligible patients, allowed new clinical roles and applicability) interfered with his clinical reasoning process: "This model does not require clinical skills [...] we only need to answer specific questions and tick boxes, it does not let us think and use our clinical judgment" (PT3). He suggested that this framework should be modified to enable more flexibility, to allow more autonomy for physiotherapists to use their clinical judgment.

Discussion

Main findings

The aim of this study was to determine the FCPs' perceived competency in their first-contact practitioner's role for LBP patients and to further explore factors underpinning these perceptions.

One of the key findings of our study is that physiotherapists felt very, or extremely competent in identifying red and yellow flags and diagnosing acute LBP. Red and yellow flag identification should already be part of the French physiotherapists' practice, thus making this result not all that surprising. However, as physiotherapists usually work based on physician's prescription, they may consider that the identification of red flags has been already done by the physician. It is therefore important to ensure that this skill is mastered in the context of the new FCP. Regarding acute LBP diagnosis, our result is a more significant finding since making a diagnosis is a restricted act that only licensed physicians in France can perform (37). This result shows that physiotherapists, in their advanced practice roles, consider that they have the required skills to adequately determine the condition of LBP patients, and manage them as primary contact practitioners (38-40). Clinical reasoning and differential diagnosis training in the undergraduate training for French physiotherapists is now integrated in several programs (21). This finding is also consistent with other international studies showing that physiotherapists can manage patients with MSKD as primary contact practitioners, or in advanced practice roles, without

an increase in adverse events (38-40). The factor that appears to contribute to the physiotherapists' high perceived competency regarding making LBP diagnosis is a previous clinical experience with LBP management. Physiotherapists do routinely look for signs and symptoms of serious pathology in spinal pain patients, even when referred by family physicians. Referring patients to family physicians when they suspect serious pathology is already part of their usual practice, and was therefore not considered as a significant change. This result is also consistent with a previous qualitative study conducted by our team showing that patients in this new model were receptive with being managed autonomously by FCP and were highly confident in the FCPs' ability to perform delegated medical tasks including making a medical diagnosis (41).

All the participants were confident in their ability to adequately refer patients to additional physiotherapy sessions when needed. Participants considered the decision-making about the need for further physiotherapy within their scope of practice. This result is consistent with a previous study conducted in the French context showing that physiotherapists were more likely to confirm their choice of beginning physiotherapy treatments and the physiotherapy approaches they used for evidence-based recommendations for LBP patients' care compared to family physicians' prescribed treatments (42). This study also reported that information required for the referral of patients to physiotherapy by French family physicians was often incomplete (42). Our results strengthen the emerging evidence that French physiotherapists have the adequate skills to independently and directly manage LBP patients including initial diagnosis and decision on further physiotherapy referral.

Another important finding was that participants mostly felt competent with analgesic prescription but expressed being somewhat uncomfortable with oral NSAID prescription. This result is in line with our previous acceptability study that showed a lower level of confidence of physiotherapists and family physicians in the physiotherapists' ability to adequately and safely prescribe oral NSAIDs (19). Other results did not differ between the two studies regarding flags' identification and physiotherapy referral, showing that professionals' perceptions before the implementation of the model were in line with their later feelings (19).

According to the participants, oral NSAID prescription is associated with higher risks and responsibilities because of contraindications and the potential adverse events associated with their use. A lack of knowledge and training regarding medication prescription was suggested as a factor for the participants' low perceived competency. Then, additional training and extensive focus on pharmacological issues should be further considered to strengthen the confidence level of physiotherapists in this advanced practice role. The said training should include clinical practice guidelines on NSAID use, as previous studies have already showed that poor familiarity with these guidelines could explain poor provider adherence (43,44). Another qualitative study conducted in the United Kingdom demonstrated that a clear understanding of responsibility associated with medical tasks is required to further support the deployment of FCP (21). The United

Kingdom developed a national competency framework for FCPs and these roles are developing well (45). The extensive training of French physiotherapists working as FCPs should therefore consider international resources.

Regarding sick leave certificate issuance, the participants' perception varied greatly. For some participants, the assessment of patients' working constraints was already part of their usual practice. For others, the unfamiliar administrative procedure required for issuing sick leaves reduced their perceived level of competencies. According to them, the additional exposure to clinical situations could improve their level of competency. This is consistent with Bandura's theory, which outlined that the repetition of previously successful tasks is more likely to strengthen self-efficacy, whereas lack of exposure or failure may weaken self-efficacy (20). The issuance of sick leave certificate by physiotherapists could be an effective strategy to alleviate medical workload but physiotherapists need to have an extensive training to do so efficiently (19).

Studies about clinical self-efficacy in advanced practice roles have been previously conducted for other healthcare practitioners, such as nurses (46,47). One study showed that peer learning and realistic simulation could result in a positive impact on nursing student's self-efficacy when working in advanced practice roles (47). Future research in advanced practice physiotherapy should focus on the efficacy of learning strategies to maximize skill and competency acquisition regarding medication prescription and sick leave issuance to ensure safe and high-value quality care for patients.

Strengths and limitations

This study is the first to evaluate physiotherapists' self-perceived competency in their first-contact roles in a new LBP advanced practice role in primary care. The mixed methods provided a quantitative perspective to determine FCPs' perceived competency, and the qualitative analysis allowed a deeper exploration of factors that influence such perceptions. Consolidated Criteria for Reporting Qualitative Research (COREQ) were considered in the design of the guide and reporting of the results. Throughout the results, quantitative and qualitative data are consistent. The verbatims clearly reflect a higher feeling of competency for some acts and low for others, in the same way as the quantitative measures do. It reinforces the internal validity of the results.

Some limitations must be considered when interpreting the results. At the time of the study, this new FCP model of care had been deployed in a limited number of primary healthcare centers in France. Only a limited number of physiotherapists working in first-contact roles could therefore be recruited in the study. In the field of implementation research, a multistage strategy for mixed-methods studies should include a purposeful sampling beginning with a quantitative broader view that emphasizes data variation and dispersion, moving then to a narrow qualitative view focusing on similarity or central tendencies (28). Such strategy is recommended to find the optimal balance between internal and external validity of the findings (28). Due to the small number of physiotherapists meeting our inclusion criteria in France, we were unable to recruit a large sample of participants in the first quantitative step of our study that could have

provided a broader view of FCPs' perceived competency in France. However, we tried to recruit all voluntary and eligible participants across the country. Findings that were analyzed in our study provided a narrow depth and understanding of FCPs' perceived competency in the French context. They may not be generalizable to all French physiotherapists or to FCPs in other countries. Indeed, the FCP model of care developed by the French authorities slightly differs from the formal international advanced practice physiotherapy models that already exist in several countries worldwide. Our findings may differ from other international contexts, training and practice frameworks.

Conclusion

The overall findings of this study suggest that physiotherapists working as first-contact practitioners in this new model of care in French primary care had a high self-perceived competency when diagnosing LBP and referring patients to additional outpatient physiotherapy care. They however felt less competent with medication prescription and sick leave issuance. The most influential reported factors for FCPs' perceived competency in medical tasks were previous FCPs' experience, training and knowledge, collaboration with family physicians, high responsibility and risk management associated with decision-making.

Our results help the emerging evidence suggesting that French physiotherapists have the necessary skills to directly manage LBP patients without medical referral. Future training focusing on analgesic drug prescription and sick leave certificate issuance is however needed to support physiotherapists' perceived competency in their advanced practice roles. Thus, further research should aim to investigate the most effective training approach to enhance FCPs' perceived competency in performing these medical tasks. Additionally, as the self-efficacy has been identified as the strongest predictor of clinical performance in various healthcare contexts and is therefore linked to quality of patients' care, further research should deeply explore the impact of self-perceived competency on the clinical performance of FCPs in medical acts.

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IV Nantes (Committee for the protection of subjects West Nantes IV, number 21.01537.000012).

Consent to participate: All participants offered written informed consent prior to enrolment in the study.

Data availability statement: The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

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