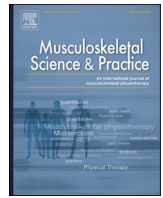




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Original article



Patient-reported outcome measurements (PROMs): Use during the physical therapy practice and associated factors

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ABSTRACT

Objective: To assess the current level of routine use of psychosocial-related patient-reported outcome measurements (PROMs) in physical therapy practice and which physical therapist-level factors are associated with the use of these measurement instruments.

Methods: We conducted an online survey study among Spanish physical therapists involved in the treatment of LBP patients in Public Health Service, Mutual Insurance Companies, and private practice during 2020. Descriptive analyses were conducted for reporting the number and instruments utilized. Thus, sociodemographic and professional features differences between PTs using and not using PROM were analyzed.

Results: From 485 physiotherapists completing the questionnaire nationwide, 484 were included. A minority of therapists routinely used psychosocial-related PROMs (13.8%) in LBP patients and only 6.8% did so through standardized measurements instruments. The Tampa Scale for Kinesiophobia (28.8%) and the Pain Catastrophizing Scale (15.1%) were used most frequently. Physiotherapists working in Andalucía and País Vasco regions, in private practice environments, educated in psychosocial factors evaluation and management, considering psychosocial factors during the clinical practice and expecting patients' collaborative attitudes demonstrated significantly greater use of PROMs ($p < 0.05$).

Conclusions: This study showed that the majority of physiotherapists in Spain do not use PROMs for evaluating LBP (86.2%). From those physiotherapists using PROMs, approximately the half use validated instruments such as the Tampa Scale for Kinesiophobia or the Pain Catastrophizing Scale while the other half limit their evaluation to anamnesis and non-validated questionnaires. Therefore, developing effective strategies to implement and facilitate the use of psychosocial-related PROMs would enhance the evaluation during the clinical practice.

1. Introduction

Low back pain (LBP) is a major global health problem, being the worldwide leading cause of years lived with disability in 2017 (GBD 2017 Disease and Injury Incidence and Prevalence Collaborators, 2018, Duncan and Murray, 2012). Since this condition is highly prevalent and directly affects the patients' quality of life and functional status, LBP

involves an important burden on healthcare systems and economy, which is expected to increase in the coming decades (Hartvigsen et al., 2018). Although prevalence is one of the most important problems of LBP, the high recurrence rate is one of the main challenges (Hoy et al., 2010). Although most of the patients suffering an acute episode of LBP will be recovered in few weeks or months (da C Menezes Costa et al., 2012), up to 33% of patients will experience more than one episode

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within the following year (da Silva et al., 2017). Chronic LBP has a poor prognosis, and no effective treatments supported with strong evidence have been found yet (Chou et al., 2017). Given the complex nature of LBP, improving the clinical assistance (i.e., diagnosis, prevention and treatments) to reduce its impact is essential (Buchbinder et al., 2018).

LBP experience is influenced by several physical and psychosocial (PS) factors (Meulders, 2020) and contribute to the patient's risk for developing chronic pain. Current clinical practice guidelines highlight the importance of identifying PS factors in all LBP patients, regardless their mechanical nature (Chou et al., 2017; Nijs et al., 2015). The use of patient-reported outcome measurements (PROMs), defined as "any report of the status of a patient's health condition that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else" (U.S. Department of Health and Human Services FDA Center for Drug Evaluation and Research, 2006), has been proposed to identify patients with greater risk of developing chronic pain and poorer treatment responses (Hill et al., 2011). Thus, PROMs data can provide more patient-centered care (Greenhalgh, 2009) and contribute to the overall quality of care delivered in physiotherapy settings (Kyte et al., 2015).

There are multidimensional PROMs aiming to guide the diagnosis, to identify the prognosis and to predict the treatment response in specific conditions based on individual contributions from different spectrums (i.e., pain, disability, daily life impact and psychological status). These multidimensional instruments are commonly known as Prognostic Screening Instruments (PSIs) (Haskins et al., 2012). For instance, the Orebro Musculoskeletal Pain Questionnaire (Hockings et al., 2008) and the STarT Back Screening Tool (Beneciuk et al., 2013) have been recommended by clinical practice guidelines (George et al., 2021; Lin et al., 2020) and a Delphi study (Verburg et al., 2019) in LBP population. In contrast, unidimensional PROMs are validated to assess an individual construct (i.e., pain, depression, anxiety, disability or daily life impairments), commonly named questionnaires, each one providing information for each specific indicator. Examples are the Fear-Avoidance Beliefs Questionnaire (Waddell et al., 1993), the Tampa Scale for Kinesiophobia (Lundberg et al., 2011) or the Pain Catastrophizing Scale (Darnall et al., 2017).

Since PS factors are well-established predictors of persistent pain and disability, available literature supports the biopsychosocial approach in physical therapy treatments (Foster et al., 2018). However, physiotherapists still show a poor understanding of both the role of PS factors in the patients' clinical presentation and their assessment (Caneiro et al., 2021; Singla et al., 2015). Several authors have noted the lower use of PROMs for prognostic purposes compared to diagnostic or evaluative goals in physiotherapy encounters (Alhowimel et al., 2021; Braun et al., 2018; Valera-Calero et al., 2021). Although the use of PROMs significantly increases after implementing strategies targeting their use, the rate of physiotherapists using these tools is still limited (Meerhoff et al., 2017; Swinkels et al., 2015).

Since the use of PROMs enhance the quality of healthcare (Greenhalgh et al., 2005), previous research focused on the factors associated with their implementation at different levels (patient, professional and organizational) (Meerhoff et al., 2020). For clinicians, the most pronounced variables investigated were their attitudes and knowledge for outcome measurements, which were found to be a facilitator (positive attitude, being convinced of the advantages towards their use and therapist specialization) and a barrier (change resistance and lack of knowledge) (Copeland et al., 2008; Duncan and Murray, 2012; Jette et al., 2009).

It is unclear how extended is the daily use of PS-related PROMs in the daily practice among physiotherapists in Spain for managing patients with LBP. Up to our knowledge, no previous evidence focused on whether its use differs between different profiles of physiotherapists. Better insights in this regard can lead to the implementation of training strategies focused on a better understanding of the role of PS factors beyond those aimed at specifically promoting the adoption of PS

measurements instruments. Finally, it is unknown if demographic and professional characteristics are different among physiotherapists using and not using PROMs. Therefore, the objective of this study is to assess the current use of PS-related PROMs (questionnaires and screening tools) in daily practice of physical therapy. In addition, we aimed to explore sociodemographic (age, gender, and geographical location), professional characteristics (years of experience, work setting and postgraduate training in PS factors) as well as attitudinal aspects regarding PS factors between physical therapists using and not using PROMs.

2. Methods

2.1. Study design

This descriptive survey study has a cross-sectional design and was conducted using a nationwide online survey among physical therapists involved in the treatment of patients with LBP in Public Health Service (PHS), Mutual Health Insurance Companies collaborating with the PHS, and private practice. We adhered the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) to ensure the quality of the report (Eysenbach, 2004). In addition, the study protocol was revised and approved by the Local Ethics Committee of *BLINDED*. An informed consent was written containing information about the length of time of the survey (around 6 min), where data were stored, information about the researchers conducting the study and the purpose of the survey.

2.2. Study population

Physical therapists from multiple regions of Spain were invited to participate through announcements on the websites and social media of the Official Associations of Physiotherapy, during 2020. In this study, we targeted a minimum sample size of 100 participants for each work setting (private practice, public health service and mutual insurance companies).

2.3. Survey development

The survey instrument was developed in two stages. Firstly, the principal researcher developed a draft released in the Google Forms platform (<https://docs.google.com/forms/>) to be tested with a small sample of 15 physiotherapists to detect potential comprehension problems, usability and technical functionality before starting the research. Since no problems were found, the final version was openly released to start the data collection.

This online survey consisted of 10 questions evaluating the physiotherapists' characteristics and their use of PS-related PROMs for managing patients with LBP. Table 1 summarizes the collected data in this study and the measurement level of each variable. Each variable was shown in a different page to facilitate the visualization of respondents. Regarding the answer-type, all questions were multiple choice except those regarding age, years of experience, Mutual Insurance Companies and the list of standardized PROMs used if applicable. Physiotherapists' opinions about the attitudinal aspects towards PS factors in patients with LBP were rated in a 11-point Likert scale, being 0 "no importance" and 10 "absolutely essential". Finally, the active implication of LBP in patients was also rated in a 11-point Likert scale, being 0 "total absence of implication" and 10 "totally implicated". Appendix 1 shows the final survey form.

2.4. Outcome variable

The primary outcome set for this study was the use or non-use of PS-related PROMs for managing patients with LBP. For those participants using PROMs, the survey evaluated if those PROMs were standardized (i.e., validated questionnaires and screening tools) or not (i.e., anamnesis

Table 1
Variables assessed, including their operationalization and measurement level.

Variable	Operationalization	Measurement level
Age	Physical therapist's age in years	Continuous
Gender	Therapist's gender: male/female	Categorical
Geographic location	Therapist's working region: Andalucía, Galicia, La Rioja, Comunidad de Madrid, Murcia, País Vasco, Aragón, Islas Baleares, Castilla-La Mancha, Islas Canarias, Cantabria, Castilla y León, Cataluña	Categorical
Experience	The therapist's experience treating musculoskeletal disorders in years	Continuous
Work setting	Therapist's working setting: private practice, public health service (primary vs secondary care) or mutual health insurance companies collaborating with the public health service (ASEPEYO, Egarsat, Fraternidad Muprespa, FREMAP, Ibermutua, MAC, MAZ, MC Mutual, Mutua Balear, Mutua Universal, Mutualia, SOLIMAT)	Categorical
Postgraduate training in PS factors	Therapist's postgraduate training in psychosocial factors availability: yes/no	Categorical
Relevance of PS factors in prognosis	Importance given to psychosocial factors with respect to the prognosis of patients with low back pain: 0 - 10	Continuous
Relevance of identification of PS factors	Importance given to identifying psychosocial factors in patients with low back pain: 0 - 10	Continuous
Relevance of management of PS factors	Importance given to managing psychosocial factors in patients with low back pain: 0 - 10	Continuous
Expected patient collaboration	Expected collaboration from low back pain patients for addressing psychosocial factors through questions or questionnaires: 0 - 10	Continuous

with or without non-structured nor validated questionnaires). Additionally, those participants using standardized questionnaires reported the number of tools used (i.e., one, two or more than two) and were asked to list which ones normally use (e.g., Tampa Scale of Kinesiophobia, Pain Catastrophizing Scale, Fear-Avoidance Beliefs Questionnaire, STarT Back Screening Tool, Orebro Musculoskeletal Screening Questionnaire, Beck Depression Inventory, State Trait Anxiety Inventory, Goldberg Anxiety and Depression Scale, Toronto Alexithymia Scale, Hospital Anxiety and Depression Scale and West Haven-Yale Multidimensional Pain Inventory).

2.5. Independent variables

In order to analyze the differences between physiotherapists using PROMs and those not using PROMS, ten features divided into three categories were evaluated: 1) Sociodemographic factors (i.e., age, gender and geographic location within Spain); 2) Professional factors (i.e., years of experience treating musculoskeletal disorders, work setting and postgraduate training in PS factors) and 3) Attitudinal aspects towards PS factors in patients with LBP (i.e., how important they considered PS factors are in the prognosis of LBP patients, in their identification and management by physical therapists and degree of collaboration expected from these patients).

2.6. Statistical analysis

Data from Google Forms were exported to the SPSS software for Mac OS (v.27.0) to be analyzed. First, Kolmogorov–Smirnov tests were used to verify the normal distribution of the data (normal data distribution was corroborate if $p > 0.05$). Then, all physical therapists' descriptive characteristics were reported for the total sample and by use or non-use

of PROMs. Between-group differences were explored by using Student's T-tests for quantitative variables and Pearson chi-square test for qualitative variables. All statistical analyses were two-tailed, conducted setting a 95% confidence level and setting a significance level of $p < 0.05$ to be considered statistically significant.

3. Results

A total of 485 completed surveys were returned from physical therapists and 484 responses (67% female; age: 35 ± 8.2 years) were included in the analyses. Since physical therapists did not receive a personalized invitation, the total number of professionals viewing the announcements on the websites and social media of their Official Associations was unknown. Therefore, calculating the response rate and the click rate was not possible.

Table 2 shows whether respondents use or not PROMs during the clinical practice for the management of LBP. Most of the respondents (86.2%; $n = 417$) reported that they do not routinely use PS-related PROMs with LBP patients and limit their evaluation to physical factors. Regarding the physical therapists reporting routinary use of PS-related PROMs (13.8%; $n = 67$), approximately the half reported the use standardized tools (49.3%; $n = 33$, 6.8% of the total sample), being the Tampa Scale of Kinesiophobia (28.8%; $n = 19$) and the Pain Catastrophizing Scale (15.1%; $n = 10$) the most popular tools. The other half evaluate PS factors with non-standardized nor validated PROMs (50.7%; $n = 34$; 7% of the total sample).

Sociodemographic, professional and attitudinal characteristics of the sample and divided by PROMs use or non-use are summarized in Table 3. Most of the respondents were located in large cities (Comunidad de Madrid 27.9%; $n = 135$; Cataluña 27.7%; $n = 134$) and only 4 of 17 Official Associations of Physiotherapy did not disseminate the survey among their members. Participants had an average working experience of 12 7.4 years. More than the half of respondents work in private

Table 2
Use of psychosocial-related patient-reported outcome measures (N = 484).

Evaluation of psychosocial factors	n (%)
No	417 (86.2)
Yes	67 (13.8)
Standardized measurement instruments	33 (49.3)
Non-standardized measurement instruments	34 (50.7)
Psychosocial Anamnesis	29 (85.3)
Non-validated Psychosocial Questionnaires	3 (8.8)
Psychosocial Anamnesis and non-validated Questionnaires	2 (5.9)
Standardized measurements instruments used	n (%)
TSK	19 (28.8)
PCS	10 (15.1)
FABQ	9 (13.6)
SBT	4 (6.1)
OMPQ	4 (6.1)
BDI	3 (4.5)
STAI	3 (4.5)
GADS	3 (4.5)
TAS	2 (3.0)
HADS	2 (3.0)
WHYMPI	2 (3.0)
Not specified	5 (7.6)
Number of standardized measurements instruments used	n (%)
One	10 (35.7)
Two	9 (32.1)
More than two	9 (32.1)

TSK Tampa Scale of Kinesiophobia; PCS Pain Catastrophizing Scale; FABQ Fear-Avoidance Beliefs Questionnaire; SBT STarT Back Screening Tool; OMPQ Orebro Musculoskeletal Screening Questionnaire; BDI Beck Depression Inventory; STAI State Trait Anxiety Inventory; GADS Goldberg Anxiety and Depression Scale; TAS Toronto Alexithymia Scale; HADS Hospital Anxiety and Depression Scale; WHYMPI West Haven-Yale Multidimensional Pain Inventory.

Table 3
Physiotherapists' characteristics and differences between those evaluating and not evaluating PS factors.

	Total sample	Evaluation of PS factors		P value
	(n = 484)	Yes (n = 67)	No (n = 417)	
SOCIO-DEMOGRAPHIC FACTORS				
Age (years)- mean (SD)	35 (8.2)	36 (9)	35 (8.1)	0.28
Gender- n (%)				0.16
Female	325 (67.1)	40 (12.3)	285 (87.7)	
Male	159 (32.9)	27 (17)	132 (83)	
Geographic location (region)- n (%)				0.01
Andalucía	8 (1.7)	2 (25)	6 (75)	
Galicia	13 (2.7)	1 (7.7)	12 (92.3)	
La Rioja	3 (0.6)	0 (0)	3 (100)	
Comunidad de Madrid	135 (27.9)	26 (19.3)	109 (80.7)	
Murcia	10 (2.1)	0 (0)	10 (100)	
País Vasco	4 (0.8)	3 (75)	1 (25)	
Aragón	12 (2.5)	0 (0)	12 (100)	
Islas Baleares	53 (11)	4 (7.5)	49 (92.5)	
Castilla-La Mancha	18 (3.7)	1 (5.6)	17 (94.4)	
Islas Canarias	61 (12.6)	10 (16.4)	51 (83.6)	
Cantabria	10 (2.1)	1 (10)	9 (90)	
Castilla y León	23 (4.8)	2 (8.7)	21 (91.3)	
Cataluña	134 (27.7)	17 (12.7)	117 (87.3)	
PROFESSIONAL FACTORS				
Experience (years)- mean (SD)	12 (7.4)	12 (7.6)	11 (7.4)	0.68
Work setting- n (%)				0.03
Private practice	272 (56.2)	47 (17.3)	225 (82.7)	
Public Health Service	109 (22.5)	13 (11.9)	96 (88.1)	
Mutual Insurance Companies	103 (21.3)	7 (6.8)	96 (93.2)	
Public Health Service- n (%)				0.36
Primary care	54 (49.5)	8 (14.8)	46 (85.2)	
Secondary care (specialized)	55 (50.5)	5 (9.1)	50 (90.9)	
Mutual Insurance Companies- n (%)				0.49
ASEPEYO	2 (0.4)	0 (0)	2 (100)	
Egarsat	3 (0.6)	1 (33.3)	2 (66.7)	
Fraternidad Muprespa	2 (0.4)	0 (0)	2 (100)	
REMAP	10 (2.1)	2 (20)	8 (80)	
Ibermutua	4 (0.8)	0 (0)	4 (100)	
MAC	3 (0.6)	1 (33.3)	2 (66.7)	
MAZ	1 (0.2)	0 (0)	1 (100)	
MC Mutual	4 (0.8)	0 (0)	4 (100)	
Mutua Balear	4 (0.8)	0 (0)	4 (100)	
Mutua Universal	68 (14)	3 (4.4)	65 (95.6)	
Mutualia	1 (0.2)	0 (0)	1 (100)	
SOLIMAT	1 (0.2)	0 (0)	1 (100)	
Postgraduate training in PS factors n(%)				<0.01
Yes	143 (29.5)	32 (22.4)	111 (77.6)	
No	341 (70.5)	35 (10.3)	306 (89.7)	
ACTITUDINAL FACTORS- mean (SD)				
Relevance of PS factors in prognosis	6.9 (1.7)	7.1 (1.6)	6.9 (1.7)	0.34
Relevance of identification of PS factors	7.6 (1.8)	8.3 (1.7)	7.5 (1.8)	<0.01
Relevance of management of PS factors	7.2 (1.9)	7.9 (1.9)	7.0 (1.9)	<0.01
Expected patient collaboration	5.8 (2.2)	6.5 (2)	5.7 (2.2)	<0.01

practice (56.2%; n = 272) and a high rate of physiotherapists has no postgraduate training in PS factors (70.5%; n = 341).

There were no significant differences for age nor gender between physical therapists using PROMs and those not using PROMs (both, p > 0.05), but there were significant differences in geographic location (p = 0.01), being Andalucía and País Vasco the regions with greater PROMs use (25%; n = 2 and 75%; n = 3 respectively). Work setting (p = 0.03) and postgraduate training in PS factors (p < 0.01) were significantly different in the PROMs-use group and non-use group, where therapists in private practice and those with postgraduate training in PS factors showed a higher use of these tools. However, no significant differences in years of experience managing musculoskeletal disorders (p = 0.68), primary or secondary PHS (p = 0.36) as well as Mutual Insurance Companies (p = 0.49) were found between respondents using and not using PS-related PROMs (Table 3).

As reported in Table 3, respondents rated the relevance of PS factors for understanding the prognosis of LBP patients with 6.93 ± 1.7 points out of 10. The identification of PS importance was rated with 7.58 ± 1.8 points and the importance of managing PS factors was rated with 7.16 ± 1.9 points. Finally, the expected patients' active collaboration was rated with 5.8 ± 2.2 points. Although both profiles of physiotherapists reported comparable importance of PS factor for influencing the LBP prognosis (p = 0.34), those respondents using PROMs considered more important the identification and management of PS factors (both, p < 0.01) and expected the patients to be more collaborative (p < 0.01).

4. Discussion

The results of this survey study showed a low rate of physiotherapists evaluating PS factors in patients with LBP. These findings were surprising since a previous report showed the current interest of physiotherapists on reliable, accurate and valid instruments for assessing musculoskeletal disorders (Valera-Calero et al., 2021), however this article assessed only physical factors. Approximately half of physiotherapists evaluating PS factors use standardized measurements instruments, being the Tampa Scale of Kinesiophobia and the Pain Catastrophizing Scale the most popular questionnaires, while the other half use unstructured and non-systematic questions. Although both groups considered equally important PS factors in LBP prognosis, those using PROMs expected patients to have more collaborative attitudes and gave more importance to identify and manage PS factors compared with those not evaluating PS factors during the clinical practice.

Accordingly with several authors who described more infrequent use of PS-related PROMs compared with pain- or function-related outcome measurements (Alhowimel et al., 2021; Knoop et al., 2020), the rate of physiotherapists evaluating PS factors was low. Furthermore, among the physiotherapists evaluating PS factors, the use of multidimensional screening tools was also low despite the recommendations their use in patients with LBP (Lin et al., 2020; Pauli et al., 2019). One possible reason is the intention of participants to report exclusively PS outcomes, beyond considering the multidimensional screening tools that include these aspects to identify the risk or prognosis of long-term LBP. Another reason could be the limitation of screening instruments to adequately predict the risk of developing chronic LBP (Karran et al., 2017). Although further research should focus on the development of pragmatic measurement instruments to be used during the clinical practice (Haskins et al., 2015), it should be noted the physiotherapists' lack of awareness for identifying certain PS profiles associated with LBP (Beales et al., 2016; Calley et al., 2010; Haggman et al., 2004; Hill et al., 2010).

Moreover, most of the unidimensional outcome measurements used by respondents were tools focused on cognition and behavior features, and less attention was paid to questionnaires addressing other psychological (e.g., depression or anxiety (Sanz et al., 2003; Herrero et al., 2003)) or social aspects (e.g., social support (Kerns et al., 1985), as highlighted in a critical review analyzing the adoption of the biopsychosocial model in physiotherapy (Mescouto et al., 2022).

Additionally, those questionnaires assessing protective factors such as self-efficacy (Martín-Aragón et al., 1999) or pain acceptance (Rodero et al., 2010) has not been informed in our sample. Given that risk and protective factors are not mutually exclusive (Lentz et al., 2016) and that a narrow focus on cognitive-behavioral factors is inadequate to address the complexity of LBP, our study results suggests that physical therapists should be more critical with the assessment procedures used during the clinical practice, using validated, standardized and systematic tools instead of limiting their evaluations to non-standardized questions.

On the other hand, PROMs range from an informal statement (non-standardized) to the completion of a validated questionnaire (standardized). In our sample, physiotherapists tended to adopt non-standardized PROMs for evaluating PS factors, which may conflict with the recommendations of LBP guidelines on the use of validated instruments (Chou et al., 2017; Nijs et al., 2015). Physiotherapists' preference towards the added value of standardized instruments and the prioritization for relying on their own expertise has been noted previously (Knoop et al., 2020). The inclusion of standardized PROMs provides an additional value over non-standardized methods for supporting all the clinical practice stages and the tendency should turn to its routine use (Beattie and Nelson, 2006; Glynn and Weisbach, 2009).

Our study found some significant differences between physiotherapists evaluating and not evaluating PS factors. One of the most relevant aspects described in previous studies is that those physiotherapists with a higher level of education (master's degree) or specialization (clinical specialty certification) use more PROMs than those with lower educational level (Copeland et al., 2008; Jette et al., 2009). In agreement with these findings, this study showed physiotherapists with postgraduate training in PS factors to use PS-related PROMs more frequently. The authors of this study are not aware of the data existence regarding the effect of general PS educative trainings on the use of PS-related PROMs. Based on the differences found in this study regarding the PS trainings between both groups, the implementation of these measurement instruments should ensure a thorough understanding of the role of PS factors in the clinical presentation of LBP patients, beyond the adoption of such assessment tools.

Additionally, a greater use of PS-related PROMs was observed in those physical therapists giving more importance to identify and manage PS factors. It is considered that physiotherapists are in an ideal situation to reduce pain experiences through educating and addressing patients' dysfunctional pain beliefs (Main and George, 2011; Malfliet et al., 2019). This aspect should be considered within the educational strategies of these health professionals. The use of PS outcome measurements was also significantly greater in those physiotherapists expecting more collaborative attitudes from the patients in concordance with other authors (Rasmussen-Barr et al., 2021, 2021stholts et al., 2019). Prior evidence reported several physical therapists' concerns about patient-level barriers, including the preference of passive treatments, difficulty of completing instruments independently (Jette et al., 2009), and the low medical literacy present in some patients (Brinkman et al., 2019).

Finally, the geographical areas with the highest reported use of PS-related PROMs were Andalucía and País Vasco. Andalucía has one of the most relevant strategic pain plans at the national level and País Vasco has one of the first multidisciplinary chronic pain units in Spain, including physiotherapists. Furthermore, the lower use of PS-related PROMs among physiotherapists in PHS and Mutual Insurance Companies could be explained by limited time per patient compared with the private practice. Time issues, supportive organizational culture, and colleague behavior regarding the adoption of outcome measurements have been noted as factors influencing the differences found in physical therapy work settings (Wedge et al., 2012).

4.1. Strengths and limitations

Our study is not free of limitations. First, the sample size may not be

representative for all physical therapists working in LBP in Spain. It is possible that those who responded were physiotherapists interested in PS factors and the use of PROMs. However, even if the non-response was non-random, in survey studies non-response does not seem to cause significant response bias (Af Wählberg and Poom, 2015) and sample size estimates are not deemed critical. In addition, we were able to display representative data in each of the three main physical therapy settings and from multiple regions of Spain. A second weakness of this study is the number and heterogeneity of factors analyzed between physiotherapists evaluating or not PS-related PROMs. Although we included the variable of the work setting and expected patient collaboration, more complete information at the patient and organizational level has not been provided. Finally, our findings depended on participants' self-reports, which may differ from reality as well as the reliability of the questionnaire we employed to determine the use of PS-related PROMs was not tested prior to the study. However, we considered that the information obtained through the open-ended question on routinely used PROMs is probably closer to reality than with a closed-ended question on a list of relevant instruments.

4.2. Implications for future research

This study has identified several research areas for further understanding why physical therapists in Spain fail to routinely use PS-related PROMs in patients with LBP. Educational strategies should ensure an understanding of both the role of PS factors and the purpose of each assessment instrument (Meerhoff et al., 2017; Swinkels et al., 2015). Future research can analyze whether strategies aiming to increase the use of PS-related PROMs have higher success rates by incorporating training on the role of PS factors and a core outcome set developed for LBP patients (Williamson et al., 2012). Qualitative research can help to better identify therapists' attitudes and beliefs towards PS-related PROMs as well as facilitators and barriers to their implementation in relation to different physiotherapy settings, LBP phases (acute, sub-acute, and chronic) and frequencies (intake assessment, intermediate/re-evaluation, and discharge assessment). Given the importance shown to the digitization of PROMs to facilitate their use (Braun et al., 2018; Rasmussen-Barr et al., 2021), future studies could analyze the effectiveness of strategies aimed at promoting the use of existing PROM banks in Spain (e.g., BiblioPRO) at both public and private organizational levels and the incorporation of PS-related PROMs into electronic patient health record systems.

5. Conclusion

This survey demonstrated an infrequent evaluation of PS factors among physical therapists in Spain for managing patients with LBP (13.8%). From those physiotherapists evaluating PS factors, approximately the half normally use standardized instruments measuring psycho-social factors while the other half limit the evaluation of PS factors to non-structured questions during the anamnesis or non-validated questionnaires. Although physiotherapists evaluating and not evaluating PS factors showed no age, gender nor working experience differences, respondents evaluating PS factors expected greater patients' collaborative attitudes, considered more important the identification and management of PS factors and demonstrated more specific post-graduate trainings in PS factors compared with physiotherapists not evaluating PS factors.

Data availability statement

All data derived from this study are presented in the text.

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Informed consent statement

Informed consent was obtained from all subjects involved in the study.

Institutional Review Board statement

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of Universidad de Alcalá.

Declaration of competing interest

The authors declare no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.msksp.2023.102744>.

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