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PORTUGUESE VERSIONS OF SELF-REPORTED MEASURES INCLUDED IN THE BIOPSYCHOSOCIAL ASSESSMENT AND OUTCOME OF PATIENTS WITH PERSISTENT PAIN (EXCLUDING CANCER) A COSMIN SYSTEMATIC REVIEW OF PSYCHOMETRIC PROPERTIES

Mestrado em Fisioterapia

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DISSERTAÇÃO ORIENTADA POR JOSÉ MANUEL ALVES GUERREIRO E NUNO ALEXANDRE VALENTE MORAIS

Leiria, julho de 2024

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Mestrado em Fisioterapia

Portuguese versions of self-reported measures included in the biopsychosocial assessment and outcome of patients with persistent pain (excluding cancer) - a COSMIN systematic review of psychometric properties

Dissertação apresentada por Dara Pincegher à Escola Superior de Saúde do Instituto Politécnico de Leiria para obtenção do grau de Mestre em Fisioterapia, realizada sob a orientação de José Manuel Alves Guerreiro, da Escola Superior de Saúde do Instituto Politécnico de Leiria, e de Nuno Alexandre Valente Morais, da Escola Superior de Saúde do Instituto Politécnico de Leiria.

Leiria, julho de 2024

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Resumo

Introdução: A dor persistente/crónica (DC) é uma experiência complexa, o que requer uma avaliação biopsicossocial abrangente e precisa. As medidas de autorrelato (MA) são fundamentais para esta avaliação. Porém, as propriedades psicométricas das suas versões em português estão pouco estudadas.

Objetivos: Identificar MA em português para a avaliação biopsicossocial da DC (excluindo cancro) e avaliar as suas propriedades psicométricas.

Métodos: Revisão sistemática registada no PROSPERO (CRD42024498769), reportada de acordo com o PRISMA. Foram incluídos artigos que referissem pelo menos uma propriedade psicométrica de MA em português, em pessoas com DC. Dois investigadores selecionaram e avaliaram de forma independente os estudos e as MA. A última pesquisa foi realizada em fevereiro de 2024. Os desacordos foram resolvidos por consenso. A qualidade metodológica, extração, análise e síntese de dados seguiram a COSMIN e a GRADE modificada. As MA foram categorizadas segundo o modelo PSCEBSM.

Resultados: Foram incluídos 21 estudos e identificadas 19 versões internacionais de MA (14 brasileiras, 5 portuguesas). Três MA (15%) foram incluídas em fenótipo de dor (P), 10 (53%) em fatores cognitivos (C), 5 (26%) em fatores emocionais (E) e 1 (5%) em motivação para a mudança (M). Não foram encontradas MA para avaliar fatores comportamentais (B) e sociais (S). Consistência interna (n=21), validação transcultural (n=19) e fiabilidade (n=16) foram as propriedades de medida mais frequentemente avaliadas. A maioria dos estudos apresentou qualidade inadequada. A maioria das MA (n=18) foram classificadas com indeterminado (?) em mais de 50% das propriedades psicométricas. A qualidade geral das MA identificadas foi muito baixa.

Conclusões: A qualidade geral da evidência para todas as MA foi muito baixa, dificultando a recomendação de MA para a avaliação de cada constructo do modelo PSCEBSM.

Palavras-chave: Medidas de autorrelato; Dor crónica; Avaliação biopsicossocial; Propriedades psicométricas

Abstract

Background: Persistent or chronic pain (CP) is complex and needs accurate biopsychosocial evaluation. Self-reported measures (SRMs) are essential for assessment, but the psychometric properties of its Portuguese versions are under-examined.

Objectives: To survey Portuguese SRMs for the biopsychosocial assessment of CP (excluding cancer) and evaluate their psychometric properties**.**

Methods: Systematic review registered in PROSPERO (CRD42024498769), reported per PRISMA checklist. Publications reporting at least one psychometric property of Portuguese SRMs assessing CP were included for analysis. Two researchers independently selected and appraised studies and SRMs. Latest search was February 2024 and disagreements were resolved through consensus. Methodological quality, data extraction, analysis, and synthesis followed COSMIN and modified GRADE. SRMs were catalogued into chronic pain-related biopsychosocial constructs (PSCEBSM model).

Results: Twenty-one studies (n=21), evaluating 19 Portuguese versions of international SRMs (14 Brazilian, 5 Portuguese), were included. Three SRMs (15%) address pain phenotype (P), 10 (53%), cognitive factors (C), 5 (26%), emotional factors (E) and 1 (5%) assesses motivation to change (M). No SRMs were found to measure behavioural (B) and social (S) factors. Internal consistency (n=21), cross-cultural validation (n=19) and reliability (n=16) were the measurement properties most often assessed. A high number of studies were of inadequate quality and most SRMs (n=18) received indeterminate (?) ratings in over 50% of their psychometric properties. The overall quality of included SRMs was very low.

Conclusions: The overall quality of evidence for all SRMs was very low, hindering the recommendation of the most evidence-based SMRs for each PSCEBSM model constructs.

Keywords: Self-reported measures; Chronic Pain; Biopsychosocial assessment; psychometric proprieties

Highlights:

- There are 19 different international SRMs for the adult population adapted to Portuguese. More SRMs are in Brazilian Portuguese (n=14) than in Portuguese from Portugal (n=5).
- According to the PSCEBSM model, Portuguese-versions of SRMs were found to assess pain phenotype (P), cognitive factors (C), emotional factors (E), and motivation (M). No SRMs were found to assess social (S) and behavioural (B) factors.
- Our findings showed that more than 50% of the SRMs have unacceptable psychometric properties, according to the criteria of good measurement properties (COSMIN).
- The overall quality of included SRMs was very low.

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List of abbreviations

APED – Associação Portuguesa para o estudo da Dor

BPI – Brief Pain Inventory

CFI – Comparative Fit Index

CLBP – Chronic Low Back Pain

COSMIN – COnsensus-based Standards for the selection of health Measurement Instruments

CP – Chronic Pain

CPAQ – Chronic Pain Acceptance Questionnaire

CPCI – Chronic Pain Coping Inventory

CPSS – Chronic Pain Self-Efficacy Scale

CSI – Central Sensitivity Inventory

DASS – Depression Anxiety Stress Scales

DIF – Differential Item Functioning

FABQ – Fear Avoidance Beliefs Questionnaire

FM – fibromyalgia

GRADE – Grades of Recommendation, Assessment, Development, and Evaluation

IASP – International Association for the Study of Pain

ICC – Intraclass Correlation Coefficient

LANSS - Leeds Assessment of Neuropathic Symptoms and Signs

MIC – Minimal Important Change

PCS – Pain Catastrophising Scale

PCTS – Pain-Related Catastrophizing Thoughts Scale

PDQ – Pain Disability Questionnaire

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analysis

PROMs – Patient-reported Outcome Measures

PROSPERO – International Prospective Register of Systematic Reviews

PSEQ – Pain Self-Efficacy Questionnaire

PSEQ – Pain Self-Efficacy Questionnaire

QoL – Quality of life

RMDQ – Rolland-Morris Disability Questionnaire

A Dissertação apresentada foi elaborada na forma de artigo original em inglês, de acordo com as normas da revista Brazilian Journal of Physical Therapy.

Introduction

Worldwide, persistent, or chronic pain (CP) represents a public health concern with a high burden for both the individual and the society[1,2]. In 2021, approximately 20.9% of the adults in the United States of America (USA), equivalent to 51.6 million people, suffered from CP, and 6.9% of them (17.1 million people) experienced high-impact CP[3]. A 2016 study[2] estimated that the total annual costs of CP (including treatment, work lost days, disability payments, and other fees) in the USA range between $550 to $625 billion/year – more than the combined cost of heart disease, diabetes, and cancer[1,2]. The European reality does not seem to be different. CP affects 10% to 30% of the European adult population[4,5] and the annual costs (direct and indirect) per patient reaches €5.665[6] in Ireland and €6.400 in Sweden[7]. In Portugal, the indirect costs of chronic non-specific low back pain were approximately €739.85 million one decade ago[3]. In Brazil, the scenario is similar, with the prevalence of CP in the adult population ranging from 23.02% to 42.33%[8], depending on the region (overall median prevalence=35.70%[8]), and an annual impact of US$ 1,960,488.069[9].

Pain has been recently reconceptualized as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage"[10]. It is conventionally categorized as acute or chronic based on time criteria. Acute pain has a limited duration, aiming to averting actual or potential tissue damage[11]. CP lasts beyond normal tissue healing time, typically more than 3 months[12–15], and is often labelled as a "disease of the brain" because it occurs when a person begins to perceive the sensation of pain in the absence of acute nociceptive triggers [16,17].

To understand the (multidimensional) pain experience, assess it and steer the plan of care, a biopsychosocial approach is advisable. Contemporary practices comprehend the identification and management of physical and other biomedical factors, as well as cognitive, behavioural, and affective constructs/processes[18,19]. The SCEBS model, developed by Speckens[20], and expanded by Wijma[21], resulting in the PSCEBSM (incorporating pain phenotype and motivation to change) acknowledges the dynamic interdependence of biological, psychological and social dimensions of persons pain experiences and offers guidance to clinicians embrace this approach and put it into practice. The acronym stands for P (Pain phenotype); S (somatic and

medical factors); C (Cognitive factors); E (Emotional factors); B (Behavioural factors); S (Social factors); and M (Motivation)[21]. This model initiates by examining and identifying the nature of pain, proceeds to identify various factors associated with CP, and concludes by determining the level of patient motivation to change[21]. The PSCEBSM model is applied to patients with CP due to its comprehensive assessment capabilities. It enables the evaluation of provoking and perpetuating biopsychosocial factors, alongside determining the predominant pain phenotypeype[21] thereby facilitating the development of individually tailored pain management strategies.

Since this pain-related biopsychosocial domains are subjective experiences primarily known to the patients themselves[22], self-reported measures (SRMs) remain the gold standard mode of evaluating core pain outcomes[23]. SRMs prerequisite psychometric validation to guarantee their precision in reflecting the intended outcomes and their capacity to consistently evaluate changes over time[24]. Without this validation, there is a notable risk of imprecision/biased outcomes, potentially resulting in erroneous conclusions[25].

Considering the importance of this matter, prior reviews have been published[26,27]. However, fourteen years have passed since these last publications and thus these reviews are not up to date. Given the significance of precise and up-to-date assessment tools, a new review is essential. Additionally, within the Portuguese-speaking medical and scientific communities, prominently Brazil and Portugal, there is a notable scarcity of translated, culturally adapted, and validated measurement instruments relevant to the internationally accepted standards in pain research[28]. The most recent reference, published in 2009 by Associação Portuguesa para o Estudo da Dor (APED)[28], reviewed seven questionnaires related to aspects of pain. It did not incorporate, however, important SRMs that emerged after 2009, and currently in use, such as the Central Sensitization Inventory (CSI), developed by Mayer et al. in 2012[29]. Hence, a fresh review that thoroughly assesses both the latest and the earliest assessment instruments accessible in the Portuguese language is needed. Moreover, it should follow a rigorous methodological process, such as that recommended by the COSMIN initiative, to ascertain and categorize psychometric properties accurately. For example, the Multidisciplinary Pain Center Development Manual[13] from IASP recommendations does not contain psychometric properties of SRMs, making the selection of the most adequate SRM unclear and difficult for

clinicians, limiting the quality of the pain biopsychosocial assessment and outcome. A robust assessment of the methodological quality of studies that evaluate psychometric properties and the quality of the outcome measure itself is also necessary[30]. This assessment provides an evidence-based recommendation on the quality of the selection of outcome measures, which is relevant for both research and clinical practice.

The main aim of this systematic review was to survey the Portuguese versions of SRMs for the biopsychosocial assessment of people with persistent pain (excluding cancer) and to evaluate the psychometric/measurement properties of those SRM using a state-of-the-art methodological approach. Based on this evaluation, a recommendation of which instrument(s) have the best psychometric properties (according to COSMIN and GRADE systems) for each biopsychosocial construct of the PSCEBSM model (i.e., pain phenotype, somatic and medical factors, cognitive aspects, emotional aspects, behavioural factors, social aspects and motivational aspects) is offered.

Methods

This systematic review was registered in the International Prospective Register of Systematic Reviews (PROSPERO; CRD42024498769) and is reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines[31,32], and the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) guidance[33,34]. A preliminary search was performed ([descriptors: biopsychosocial assessment, self-reported measures, and chronic/persistent pain]), in the webpages of international and national medical societies (e.g., International Association for the Study of Pain, Associação Portuguesa para o Estudo da Dor, Sociedade Brasileira para o Estudo da Dor) and health authorities (e.g., Direção Geral da Saúde) to provide a general overview of the existing instruments and to include their designations in the final search strategy. These instruments were grouped into seven assessment categories, according to Wijma et al.,[21] based on the biopsychosocial model of pain: pain phenotype, somatic and medical factors, cognitive aspects, emotional aspects, behavioural factors, social aspects and motivational aspects).

Eligibility criteria

To be eligible, studies had to evaluate at least one psychometric property of a Portuguese version of a SRM of at least one construct of the multidimensional nature of pain experience[21]. Studies had to include human adults (age ≥ 18 years) with persistent pain lasting at least 3 months (or described as "chronic and/or persistent" by the study authors); if the study included multiple phenotypes of pain, the study must have had at least 75% of the sample with persistent pain, unless results were reported separately for the persistent pain group. Only full text English or Portuguese publications were included. Exclusion criteria consisted of studies involving patients with cancer or aged under 18 years old; review articles; body area-related pain assessment tools (for example, the WOMAC - Western Ontario and McMaster Universities Osteoarthritis Index, specific for assessing pain and functionality in patients with hip and knee osteoarthritis), or to assess quality of life. Studies aiming to evaluate psychometric properties of instruments that were in a language other than Portuguese (European or Brazilian) or trials of pain interventions, or others in which the assessment of psychometric properties was not clearly noted in the abstract or full text were excluded.

Information sources and search strategy

A systematic literature search was performed in the electronic databases EMBASE/Scopus, Web of Science, PubMed, SciELO, Google Scholar, and PsycINFO from inception to February 2024. Additionally, two national repositories, one Portuguese (Repositórios Científicos de Acesso Aberto de Portugal or RCAAP)[35] and one Brazilian (Portal de Periódicos da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior or CAPES)[36], were used to aggregate more research material, such as, master, or doctoral theses produced in higher education institutions of those countries. Search strings were based on the COSMIN search filters to identify studies with psychometric properties linked to terms related to biopsychosocial assessment, chronic/persistent pain, self-administered instruments, Self-reported Measures (SRMs) or Patient-reported Outcome Measures (PROMs). More details on the search strategy are available in the Supplementary Material (1).

All citations were uploaded to and organized within the Mendeley reference manager version 2.83.0 (Mendeley Ltd., London, UK), and subsequently exported to the Rayyan software (https://www.rayyan.ai) for further management and analysis. References of relevant

publications were also screened for potential additional studies.

Selection Process

Two independent reviewers (DP and SP) performed the initial screening of the articles based on their title and abstract, according to the eligibility criteria. In case of doubt, an independent full-text screening was made to decide its inclusion. Then, the full text of potentially relevant articles was screened for content to decide its final inclusion in the review. Disagreements regarding the choice of the abstract or the full article were resolved by discussion between the two reviewers and, if there was no consensus between the two, a third reviewer (NM) was consulted. The level of interrater agreement was calculated using the Cohen's kappa statistic which is often interpreted as follows: 0 - 0.20 no agreement, 0.21 - 0.39 minimal level of agreement, 0.40 - 0.59 weak, 0.60 - 0.79 as moderate, 0.80 - 0.90 as strong, and above 0.90 as almost perfect level of agreement[37]. Disagreements were resolved by consensus.

Data extraction

Each reviewer documented the decision for every eligible article while operating in "blind-on" mode within the Rayyan system thereby preserving independence. If the search yields multiple studies on the same instrument and the same psychometric property, all these studies were included, and this information is shown accordingly. After selecting the studies, they were inserted into the online review of the Rayyan system, to remove duplicate studies identified in the different databases and determine whether the studies met the requirements of the inclusion criteria for this analysis. For duplication detection in the Rayyan system, only articles with a Similarity Percentage above 95% were admitted through.

Data was extracted and analysed by the same two independent reviewers and recorded in a structured table according to the following topics (based and adapted from COSMIN table appendix 3 - 7, a table on characteristics of the included SRM, found in the user manual), which included: (i) basic information about the included studies, including title, first author and publication year; (ii) extracted data includes the name of the measuring instrument, country of assessment, method of administration, characteristics of the participating patient (age, sex, diagnosis, or pain phenotype), psychometric results (structural validity, internal consistency,

reliability, measurement error, hypothesis testing for construct validity, cross-cultural validity\measurement invariance, criterion validity, and responsiveness).

Quality assessment

For each SRM, the quality of psychometric properties reported in studies were appraised in three steps. First, the quality of the methods described to evaluate an instrument's psychometric properties in the included studies was appraised, following the COSMIN Risk of bias Checklist (referred in this review as the risk of bias assessment). Second, the quality of psychometric properties for each SRM were evaluated based on criteria for good measurement properties according to the results of the validation studies (referred to in this review as quality of psychometric properties). Thirdly, considering each SRM (compiling data from all included studies on each SRM) the quality/certainty of evidence was graded as high, moderate, low or very low evidence using a modified GRADE approach (referred to as quality of evidence gradings). Data from these three appraisals were combined to provide a best-evidence synthesis of the quality of the measurement properties for each instrument included – the overall rating (table 4).

Risk of bias assessment

The quality of each study on a measurement property was assessed separately, using the corresponding COSMIN box of the Risk of bias checklist [38] which contains standards referring to design requirements/preferred statistical methods on the following measurement properties: content validity, structural validity, internal consistency, cross-cultural validity/measurement invariance, reliability, measurement error, criterion validity, hypotheses testing for construct validity, and responsiveness. The review members followed COSMIN's four-point rating system, rating the standard of each property as "very good," "adequate," "doubtful," or "inadequate" [38]. The methodological quality index by property was obtained by taking the lowest rating of any item in each box following[38]. Two reviewers (DP and SP) evaluated each study using this approach independently, with disagreements resolved through consensus.

Quality of psychometric properties

Each psychometric property was evaluated against the updated criteria for good measurement properties (Table 4 presented in COSMIN manual[33]) which represents the preferred standards for each measurement property, and thus classified as (+) sufficient, (-) insufficient, (?) indeterminate, or (+/-) inconsistent.

Quality of evidence gradings

The certainty/quality of evidence was synthesized for the summarized/pooled results of each multi-study SRM using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) criteria[40]. The GRADE approach for systematics reviews allows the specification of four levels in quality of evidence (i.e., high, moderate, low, or very low-quality evidence), being dependent on four factors: (1) methodological quality (risk of bias), (2) inconsistency (inconsistency of results across studies); (3) imprecision (i.e. total sample size of the available studies, and (4) indirectness (i.e. evidence from different populations than the population of interest in the review)[39]. This last criterion was not considered as the present review has a specific target population and only studied Portuguese-speaking (Brazilian or European) adults with CP. The modified GRADE (mGRADE) was used instead, as recommended by COSMIN, acknowledging a systematically classification of the quality of the evidence in reviews of SRMs. Noteworthy, the GRADE approach downgrades the quality of evidence when concerns about the reliability of the results are identified[33]. Table 1 provides the definitions of the four levels of quality of evidence[33].

Table 1 - Definitions of quality levels of GRADE

Quality level	Definition
High	We are very confident that the true measurement property lies close to that of the estimate* of the measurement property
Moderate	We are moderately confident in the measurement property estimate: the true measurement property is likely to be close to the estimate of the measurement property, but there is a possibility that it is substantially different
Low	Our confidence in the measurement property estimate is limited: the true measurement property may be substantially different from the estimate of the measurement property
Very low	We have very little confidence in the measurement property estimate: the true measurement property is likely to be substantially different from the estimate of the measurement property

*Estimate of the measurement property refers to the pooled or summarized result of the measurement property of a PROM.

Overall quality of SRMs

Recommendations on the most evidence-based measure for a given construct and study population are often categorized into three groups[34]: A – those with sufficient content adapted validity and at least low-quality evidence for sufficient internal consistency, B – those that do not fit into categories A or C, and C – those with high-quality evidence of insufficient measurement properties[32]. Category "A" SRMs are recommended and considered trustworthy; category "B" SRMs have potential but need further research, and category "C" SRMs should not be recommended[32]. If only category "B" SRMs are available, the one with the strongest evidence for content validity can be provisionally recommended until more evidence is obtained[34]. Thus, to make these recommendations the content validity of adapted versions need to be evaluated. However, there is a recognized lack of data on adapted or validated SRMs content validity, reducing the important mission of offering guidance to clinicians on the best SRMs to assess CP-related constructs[40,41]. In order to overcome this limitation, the overall quality of each instrument within each domain of the PSCEBSM model was assessed based on the assessment of risk of bias, criteria for good measurement property, and the quality of evidence (GRADE), which was referred in this review as the overall rating, which was obtained by taking the lowest rating of any item in the Table 5 applying the worst score counts principle

reported in COSMIN. Two reviewers (DP, SP) independently assessed each SRM using this approach, with disagreements resolved through consensus.

Data analysis

Data was synthesized in summary tables (which is derived from the structured data extraction table described above) according to tables recommended in the COSMIN manual (table 2; table 5 appendix (2); table 6 appendix (3), table 7 appendix (4); table appendix (5)). Another table (table 5), combining all the results from this review was created and is grouped by biopsychosocial pain-related constructs (pain phenotype, somatic and medical factors, cognitive aspects, emotional aspects, behavioural factors, social aspects and motivational aspects) and language (European Portuguese or Brazilian Portuguese).

The four major measurement sets evaluated were reliability, validity, responsiveness, and interpretability, following COSMIN guidelines[34]. Data on these psychometric proprieties of each measurement tool is reported narratively. The reliability construct is dependent on internal consistency, reliability, and measurement error[34]. The construct validity includes structural validity, hypotheses testing for construct validity, cross-cultural validity/measurement invariance, and criterion validity[34]. The responsiveness domain comprises only one measurement property, also referred to as responsiveness[34]. Furthermore, there is a part of the dimensions presented in the checklist adapted for studies focusing on interpretability[34]. A detailed description of each psychometric property is available in the COSMIN manual (Table 1)[34].

Results

Search results

A total of 1380 articles were identified from searches in the 7 databases. After duplicate removal, a total of 60 records were screened. Twenty-five additional records were identified via other methods: 15 from websites and 10 from citation tracking. A total of 41 studies were assessed for eligibility (19 from databases and 23 from other sources). Of these potential articles, 21 were excluded for the following reasons: target population not including people with CP (n=12), instrument validation to a language other than Portuguese (n=4), SRM assessing quality of life or a specific body-part (n=4) and systematic reviews (n=1). A total of

21 studies were included for appraisal. The PRISMA flowchart is presented in Figure 1. The interrater agreement of study inclusion and exclusion was moderate (Cohen's kappa= 0.68).

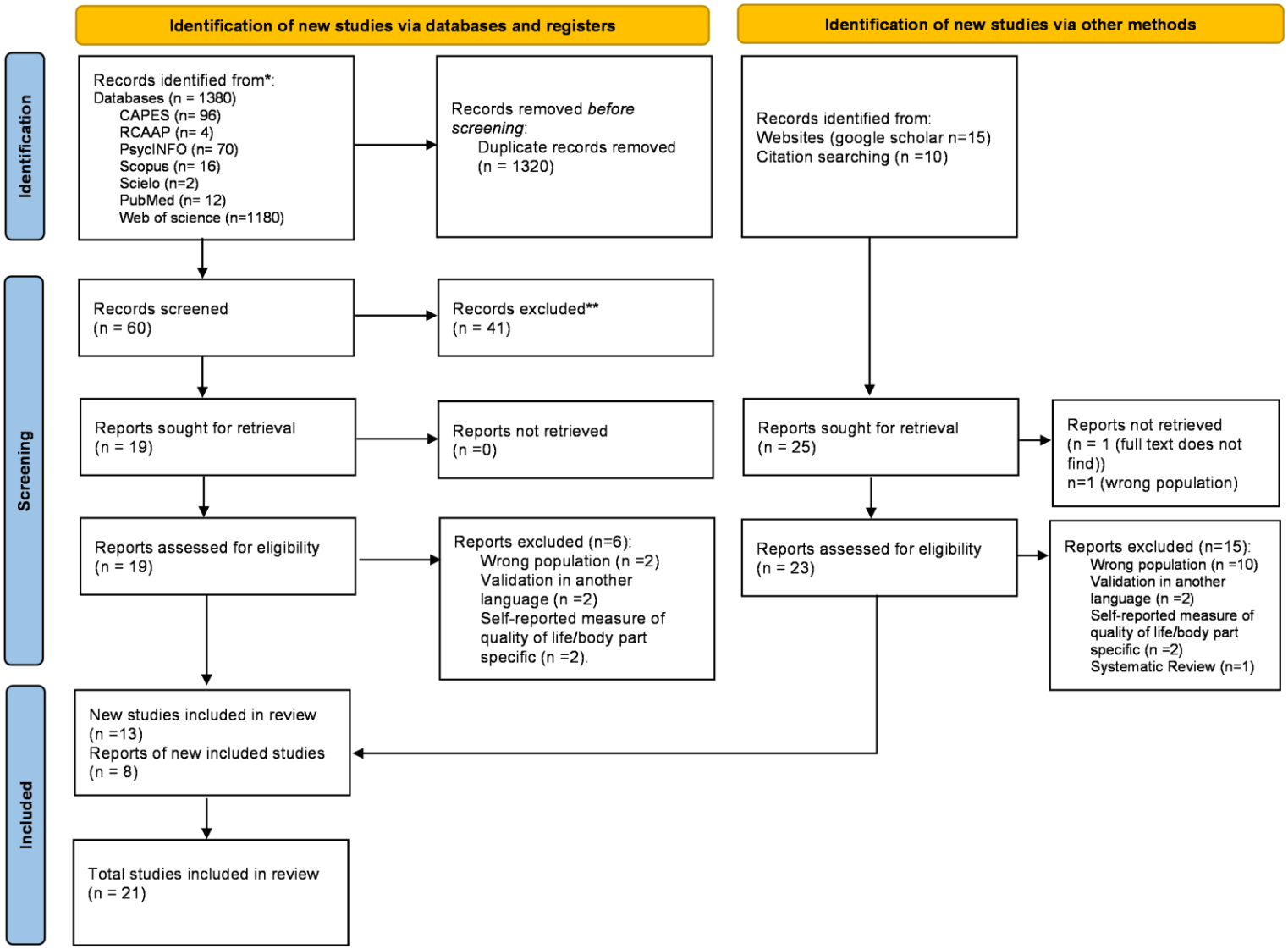

Figure 1 - PRISMA flowchart reporting search results

Study characteristics

A summary of the characteristics of the included studies is presented in Table 2. Among the 21 included studies, 19 different SRMs were identified. Five publications (n=5) reported the psychometric evaluation of 5 SRMs in European Portuguese and 17 studies, comprising 14 SRMs, in Brazilian Portuguese. A total of 4197 patients with CP participated in the 21 studies. The mean age of the patients ranged from 36.2 to 60.8 years, with the majority being female (51% to 100%). Most of the studies (n=14) were conducted in clinical settings, either private or public. Regarding the target population, 7 studies included patients with various diagnoses[42–48], 3 studies included only patients with non-specific chronic low back pain[49–51], 1 study only included patients with fibromyalgia[52], and another (n=1) exclusively involved patients with temporomandibular disorder (TMD)[53]. Nine studies (n=9) did not specify the patients' medical diagnoses[54–62] (Table 5 - Appendix (2)).

Four (n=4) SRMs were investigated in more than one study (Tampa Scale for Kinesiophobia – TSK); Chronic Pain Coping Inventory - CPCI; Leeds Assessment of Neuropathic Symptoms and Signs – LANSS and Pain Self-Efficacy Questionnaire - PSEQ). The psychometric properties of three versions of the TKS (TSK 17-BR; TSK 18-BR and TSK 13-PT) were investigated and reported in 4 studies[50–53]. Three studies[50,52,53] were conducted in Brazil (n=3) and 1 in Portugal[51]. Two studies[60,61] reported data on psychometric properties of the CPCI, both conducted in Brazil (n=2). The LANSS[42,43] (n=2) and the PSEQ[46,56] (n=2) were validated for both languages and thus reported in two studies each.

Using the PSCEBSM model as a biopsychosocial framework, three of the 19 SRMs (15%) were categorized (Table 5) in pain phenotype (3/19), more than half (53%; 10/19) in Cognitive factors, 26% (5/19) of SRMs were related to Emotional factors and 5% (1/19) to Motivation to change domain. None of the SRMs were found to assess Behavioural and Social factors. Table 3 summarizes the construct(s) covered by each SRM according to the PSCEBSM model.

Table 2 - Table on characteristics of the included Self-Reported Measures (SRMs)

Self-Reported Measures (SRM)* (reference to first article)	**Construct(s)**	**Target population**	**Mode of administration** (e.g. self-report, interview-based, parent/proxy report etc)	**Recall period**	**(Sub)scale (s) (number of items)**	**Response options**	**Range of scores/scoring**	**Original language**	**Available translations**
Brief Pain Inventory (BPI) – PT Valente, Ribeiro, and Jensen, 2012	Pain-related Interference on general activity, mood, walking ability, normal work, relations with other persons, sleep, and enjoyment of life	Adults (> 18 years) with CP musculoskeletal	Self-report		7 items about daily life activities	0 to 10 numerical rating scale	-	-	-
Central Sensitization Inventory (CSI) – BR Caumo et al., 2017	Symptoms related to central sensitization	Female's adults (> 18 years) with CP (fibromyalgia, myofascial pain syndrome, chronic tension-type headache, and osteoarthritis)	Self- report	15 days	2 parts: Part A – 25 questions Part B: Central sensitization disorders or related disorders (e.g.	5 options related to frequency: 0 to 4 (never to always)	Scores 0 – 52, scores >40 indicates the presence of central sensitisation	English	English, Central American Spanish, and Dutch

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					anxiety; depression)				
Chronic Pain Acceptance Questionnaire (CPAQ) - PT Costa and Gouveia 2009	Pain experience	Adults with CP (rheumatoid arthritis and CP without other specificity)	Self- report		20 items. 2 subscales: Disposition for pain; Activities performance	7-point frequency Likert scale	Total score 120. High scores mean greater acceptance of pain.	English	-
Chronic Pain Coping Inventory (CPCI) – BR Souza et al., 2018 Souza et al., 2021	Pain coping strategies	Adults (> 18 years) with CP nonspecific (≥6 months)	Self-report	-	70 Items	0 to 7 score	The sum of the items for each scale is the score for that type of CS. Higher values indicate higher levels of use of that CS type.	-	United States, Canada (French language), France, Canada (English language), Sweden, Spain, China, North Korea, Portugal, Italy, Poland and Netherlands
Chronic Pain Self-Efficacy Scale (CPSS) - BR	Self-Efficacy ability to deal with pain consequences	Adults (>18years) with CP (6 months) non-oncological pain of varying aetiologies	Self-report	Not applicable	22 items. 3 domains: self-efficacy for controlling pain, self-efficacy for physical	Certainty Likert scale 10 to 100	Total score for each factor is the sum of the whole. maximum score = 300;	British	English

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Salvetti and Pimenta, 2005					function; self-efficacy for symptom control		minimum = 30.		
Depression Anxiety Stress Scale (DASS) – BR Sardá et al., 2008	Depression, stress and anxiety	Adults (>18 and <85 years) with CP	Self-report	-	42 items: 3 subscales: depression; anxiety; stress	0 to 3 score 0- Did not apply to me at all to 3-Applied to me very much, or most of the time	-	-	English
Fear Avoidance Beliefs Questionnaire (FABQ) - BR Abreu, de Ana Maria et al., 2008	Fear avoidance beliefs about PA and work	Adults (18 to 75years) with CP (>3 months)	Self- report	10 days	16 items. 2 subscales: physical activities (FABQ-Phys) and work (FABQ-Work).	7-point agreement Likert scale	Total 0 – 42 related to work. Physical activities 0 – 24	English	German, French and Spanish
Leeds Assessment of Neuropathic Symptoms and Signs (LANSS)-BR Schestatsky et al., 2011	Pain mechanism	Adults (> 18 years) with CP (>3 months)	Self-report	1 day	7 items. 2 sections: Section A –5-item questionnaire section B – physical examination 2 items – sensory tests	0 – absence; 1-5 –presence of sing/symptoms	Score total= 0 to 24. Cuttoff: <12 nociceptive pain predominance; >12 neuropathic pain predominance.	English	Spanish and Turkish

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Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) - PT Barbosa et al., 2013	Pain mechanism	Patients' adults (> 18years) with CP (>3 months)	semi-structured interview	15.2 ≥ 4.6 days	7 items. 2 sections: Section A (5 item questionnaires) section B (2 items sensory tests) – physical examination	0 – absence; 1-5 –presence of sing/symptoms	0 – 24. Score>12 has been set as being indicative of a neuropathic mechanism's contribution	English	Spanish, Brazilian, and Turkish
Pain Catastrophizing Scale (PCS) - BR Sehn et al., 2012	Pain catastrophizing	Adults (> 18 years) with CP	Self-report	-	13 items. 3 domains: helplessness, magnification; rumination	5-point Likert: (0) not at all; (1) to a slight degree; (3) to a moderate degree, (4) to a great degree, (5) and all the time.	Score total= 0 to 52	English	
Pain Self-Efficacy Questionnaire (PSEQ) - BR Sardá et al., 2006	Self-Efficacy	Adults (>18 years) with CP	Self-report	-	10 items	7-point confidence Likert scale	Higher scores = stronger self-efficacy beliefs	-	Chinese, German and Malay

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Pain Self-Efficacy Questionnaire (PSEQ) - PT Valente, Ribeiro, and Jensen, 2008	Self-efficacy	Adults (> 18 years) with CP musculoskeletal (≥3 months)	Self-report	-	10 items	0 – 6 numerical rating scale, where: 0 = not at all confident; 6 =completely confident	Total score=0 to 60. Higher score= stronger self-efficacy beliefs	-	Brazil and China
Pain-Related Catastrophizing Thoughts Scale (PCTS) - BR Sardá et al., 2008	Pain catastrophizing	Adults (> 18 -80 years) with CP (>3 months)	Self-report	-	9 items. 2 scales: coping strategies; catastrophizing	6- point frequency Likert scale	Total score is the sum of all items divided by the number of answered items. Minimum score= 0; Maximum score=5.	-	English
Roland Morris Disability Questionnaire (RMDQ) - BR Sardá et al., 2010	Disability	Adults (> 18 -80 years) with CP (>3 months)	Self-report	-	24 items	0 – no 1 – yes	Total score 0 to 24. 0=no disability; 24=severe disability	-	12 languages
Survey of pain attitudes – brief version (SOPA) - BR Pimenta et al., 2004	Feelings about pain control, solicitude, medication, pain-related disability, pain and emotions,	Patients with CP	Self- report	-	30 items. 7 domains of beliefs and attitudes towards pain	5-point Likert. (0=completely false, 1=false, 2=neither true nor false, 3=almost true, 4=completely true).	Score for each scale/ domain= sum of item points/ number of items	English	-

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	pain-related harm						answered. No cutoff points.		
Tampa Scale for Kinesiophobia (TSK – 17) - BR Salvador et al., 2021	Fear of movement or (re)injury	Patients with fibromyalgia (2010 American College of Rheumatology diagnostic criteria)	self-report	15 days	17 items	4-point agreement Likert scale	Total score varies between 17 and 68 points. Higher score = greater kinesiophobia.	-	-
Tampa scale for kinesiophobia (TSK – 18) - BR Aguiar et al., 2017	Fear of movement or (re)injury	Woman (18 to 50 years) with chronic temporomandibular disorders symptoms (>3 months)	Self- report	7 days	18 items	4-point agreement Likert scale	18–72 points	-	Dutch, Italian, Swedish, Norwegian, Persian and Brazilian-Portuguese
Tampa Scale for Kinesiophobia (TSK – 17) – BR Siqueira, Salmela and Guimarães, 2006	Fear of movement or (re)injury	Adults (18 to 65years) with CP (>3 months)	Self-report	7 days	17 questions	4-point agreement Likert scale	Total score 17 to 68 points. Higher score = higher kinesiophobia	-	-
Tampa Scale for Kinesiophobia (TSK – 13) – PT Cordeiro, Cabri and Correia, 2013	Fear of movement or (re)injury	Patients with nonspecific CLBP (>12 weeks)	Self-report	7 days	13 questions	4-point agreement Likert scale	Total score 13 to 52 points. Higher score = higher kinesiophobia	English	Norwegian, Dutch, Swedish, French, and Brazilian

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Pain Disability Questionnaire (PDQ) - BR Giordano et al., 2012	Functional status	Patients with chronic musculoskeletal pain (>12 weeks)	Self- report	48 hours	15 items. 2 domains: functional condition; psychosocial component	Numerical rating scale (0 to 10)	Total score: 0 to 150. Mild/moderate (0-70); severe (71-100); and extreme (101-150).	English	-

BR, Brazilian Portuguese Version; PT, European Portuguese Version; PA, Physical Activity; CP, Chronic Pain * Each version of a PROM is considered a separate PROM.

Table 3 - Construct(s) covered by each SRM according to the PSCEBSM model

SRM	Pain phenotype (P)	Somatic and medical (S)	Cognitive factors (C)	Emotional factors (E)	Behavioural factors (B)	Social factors (S)	Motivation (M)
BPI			✓				
CPAQ			✓				
CPCI							✓
CPSS			✓				
CSI	✓						
DASS				✓			
FABQ				✓			
LANSS	✓						
PCS			✓				
PCTS			✓				
PDQ			✓				
PSEQ			✓				
RMDQ			✓				
SOPA			✓				
TSK				✓			

BPI, Brief Pain Inventory; CPAQ, Chronic Pain Acceptance Questionnaire; CPCI, Chronic Pain Coping Inventory; CPSS, Chronic Pain Self-efficacy Scale; CSI, Central Sensitization Inventory; DASS, Depression Anxiety Stress Scales; FABQ, Fear Avoidance Beliefs Questionnaire; LANSS, Leeds Assessment of Neuropathic Symptoms and Signs; PCS, Pain Catastrophising Scale; PCTS, Pain-Related Catastrophizing Thoughts Scale; PDQ, Pain Disability Questionnaire; PSEQ, Pain Self-Efficacy Questionnaire; RMDQ, Rolland-Morris Disability Questionnaire; SOPA, Survey of Pain Attitudes; TSK, Tampa Scale for Kinesiophobia.

Overall Results for the Quality of Validation Studies and Measurement Properties and Best-Evidence Syntheses of included SRMs

The methodological quality of each study (n=21) is shown in appendix (5; Table 8). The following measurement properties were evaluated: structural validity (n=10), internal consistency (n=21), cross-cultural validity (n=19), reliability (n=16), measurement error (n=3), criterion validity (n=8), construct validity (n=13) and responsiveness (n=1).

None of the SRM was rated with 'sufficient' (+) on criteria for good measurement properties in more than 50% of the psychometric properties (Table 4). Only one SRM (TSK 13-PT)[51] had 50% (4/8) of psychometric proprieties rated as 'sufficient' (+).

Biopsychosocial Pain-related Constructs, Measurement Quality and Best-Evidence Synthesis of included SRMs

Pain phenotype

Two different SRMs, LANSS and CSI, were found in the domain pain phenotype (Table 3). These two instruments have been used for the assessment of pain mechanism and symptoms related to neuropathic symptoms and central sensitization, respectively (Table 2). There was one study conducted in Brazil for each SRM (CSI-BR and LANSS-BR)[43,48]. Only one SRM (LANSS-PT), in a single study, was investigated in Portugal[42]. Table 4 shows the results of the evaluated psychometric properties for each SRM within the domain pain phenotype.

LANSS-BR and LANSS-PT were conducted in studies with participants having mixed pain phenotypes (nociceptive, neuropathic, and mixed pain), and the validation of CSI included adult females with CP related to fibromyalgia, myofascial pain syndrome, chronic tension-type headache, and osteoarthritis (Table 5 in appendices (2)).

CSI-BR[48] was the SRM with more (3/8) psychometric properties rated as 'sufficient' (+). However, this evaluation resulted from a single study showing 'inadequate' methodological quality (Table 4).

Internal consistency and reliability were evaluated in all SRMs (LANSS-BR, LANSS-PT and CSI-BR). Measurement error was not evaluated in any (Table 4).

Cross-cultural validity/measurement invariance was evaluated in all 3 SRMs (LANSS-BR, LANSS-PT and CSI-BR). Construct validity was evaluated in LANSS–BR [43,48] and CSI-BR)[43,48]. Structural validity and criterion validity were evaluated in only one SRM (CSI-BR)[48]. Responsiveness was not evaluated in all SRMs.

By applying the "worst score counts" rule, the overall quality of the SRMs within the pain phenotype domain were assessed as 'very low'. Specific ratings can be found in the results presented in Table 4.

Cognitive factors

Ten SRMs (Chronic Pain Acceptance Questionnaire–PT (CPAQ-PT); Pain Disability Questionnaire-BR (PDQ-BR); Survey of Pain Attitudes-BR (SOPA-BR); Chronic Pain Self-Efficacy Scale-BR (CPSS-BR); Pain Self-Efficacy Questionnaire-PT (PSEQ-PT); Pain Self-efficacy

Questionnaire-BR (PSEQ-BR); Pain-Related Catastrophizing Thoughts Scale-BR (PCTS-BR); Pain Catastrophizing Scale-BR (PCS-BR); Rolland-Morris Disability Questionnaire-BR (RMDQ-BR); Brief Pain Inventory-PT (BPI-PT)) were included in the cognitive factors domain (Table 3). These instruments assess 5 different constructs related to cognitive factors: pain attitudes, pain experience, self-efficacy, pain catastrophizing, and perceived disability. Three (n=3) studies [44,46,62] were completed in Portugal and 7 in Brazil[45,47,54–56,58,59] (Table 2).

PCS-BR[47] was the SRM with more psychometric proprieties (3/8) rated as 'sufficient' (+). However, this evaluation resulted from a single study rated with 'inadequate' methodological quality.

All SRMs (n=10) reported data on internal consistency, seven evaluated reliability (PDQ-BR [45]; SOPA-BR[55]; PSEQ-PT[46]; PSEQ-BR[56]; PCTS-BR[58]; PCS-BR[47]; RMDQ-BR[59]), and none evaluated measurement error.

Cross-cultural validity/measurement invariance was investigated in all but one SRM (BPI-PT). Construct validity was evaluated in 7 SRMs (CPAQ-BR[44] , PDQ-BR[45], PSEQ-PT[46], PCS-BR[47], CPSS-BR[54], RMDQ-BR[59], BPI-PT[62]). Structural validity was reported in 6 SRMs (PSEQ-PT[46], PCS-BR[47], CPCI-BR[54], PSEQ-BR[56], PCTS-BR[56] , BPI-PT[62]). Criterion validity was evaluated in 4 SRMs (CPCS-BR[54], PSEQ-BR[56], RMDQ-BR[59,] BPI-PT[62]).

No study focused on responsiveness.

The overall quality of the SRMs within the domain cognitive factors were assessed as 'very low'. For each SRM, specific ratings can be found in Table 4.

Emotional factors

Five (n=5) SRMs (Fear Avoidance Beliefs Questionnaire-BR (FABQ-BR); Tampa scale for kinesiophobia (TSK: TSK 17-BR, TSK 18-BR, TSK 13-PT) and Depression Anxiety Stress Scales-BR (DASS-BR)) were found to assess three different emotional factors, respectively, fear-avoidance, fear of movement/fear of re-injury and depression/stress/anxiety (Table 2). All SRMs were adapted to Brazilian Portuguese, but only the TSK 13-PT[51] was adapted to European Portuguese[51]. The adaptation to Brazilian language was conducted for the 17-item (TSK 17-BR) [50,52] and the 18-item (TSK 18-BR)[53] versions.

TSK 13-PT[51] was the SRM with more (4/8) psychometric properties rated as 'sufficient' (+). This evaluation resulted from a single study rated with 'inadequate' methodological quality, though.

All SRMs (FABQ-BR; TSK-17-BR, TSK-18-BR, TSK-13-PT and DASS-BR) categorized as emotional factors assessed internal consistency and reliability. Measurement error was reported in 3 of those SRMs (TSK 17-BR[50,52], TSK 13-PT[51], TSK 18-BR [53]).

Cross-cultural validity/measurement invariance and construct validity were assessed in all 5 SRMs (FABQ-BR[63], TSK 18-BR [53], TSK 17-BR [50,52], TSK 13-PT [51], DASS-BR[57]). The structural validity was evaluated in 2 (TSK 17-BR[50,52], TSK 13-PT[51]) and criterion validity in 3 SRMs (TSK 17-BR [50,52], TSK 13-PT[51] and DASS-BR [57]).

Responsiveness was not assessed in any study.

By applying the "worst score counts" rule, the overall quality of the SRMs within the domain emotional factors were assessed as 'very low'; specific ratings can be found in the results accessible in Table 4.

Motivation

In the motivation domain, only one SRM was identified: the Chronic Pain Coping Inventory-BR (CPCI-BR) (Table 2). This instrument assesses pain coping strategies. It was evaluated in 2 different studies[60,61], both conducted in Brazil, comprising a sample of 764 adults (> 18 years) with nonspecific chronic pain (≥ 6 months). One study[61] focused solely on evaluation of cross-cultural adaptation and the other one[60] targeted structural validity. Only 3 out of the 8 psychometric properties were assessed as detailed below.

CPCI-BR[60] had no psychometric property rated as 'sufficient' (+) and was reported in two studies showing 'inadequate' methodological quality.

Internal consistency was the sole property assessed in the reliability set and cross-cultural validity/measurement invariance the only one evaluated within the scope of validity.

Responsiveness was also not assessed in this SRM.

The overall quality of this SRM, within the domain motivation, was assessed as 'very low'. Its specific ratings can be found in Table 4.

Interpretability and Feasibility of SRMs

Data on interpretability and feasibility is presented in appendix 3 and 4 (Tables 6 and 7, respectively. Description of interpretability measures on the included studies was absent. Interpretability of single scores with presentation of the distribution of scores in the study population were the frequent reported data on this section. The aspects of feasibility most reported were the type and ease of administration and the length of the instrument. There were few studies reporting aspects related to the comprehensibility of both patients and clinicians and completion time.

Table 4 - Best evidence synthesis of outcome measures used to assess CP against COSMIN risk of bias, criteria for good measurement properties, and level of evidence for the measurement property (mGRADE)

Pain-related construct (Wijma et al., 2016)	Measurement property	Studies	Sample size	COSMIN risk of bias checklist rating	Level of evidence – modified GRADE	Result the criteria for good measurement properties (rating)	Overall quality rating
Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) - BR							
(P) Pain phenotype	Internal consistency	1	90	Inadequate	Very low	?	**Very Low**
	Reliability	1	90	Inadequate	Very low	-	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	90	Doubtful	Very low	?	
	Construct validity	1	90	Inadequate	Very Low	?	
	Structural validity	0		Not evaluated	Not evaluated	?	
	Criterion validity	0		Not evaluated	Not evaluated	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) - PT							
(P) Pain phenotype	Internal consistency	1	167	Inadequate	Very low	?	**Very Low**
	Reliability	1	90	Doubtful	Very low	+	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	90	Inadequate	Very low	-	
	Construct validity	0		Not evaluated	Not evaluated	?	
	Structural validity	0		Not evaluated	Note evaluated	?	
	Criterion validity	0		Not evaluated	Not evaluated	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Central Sensitization Inventory (CSI) – BR							
(P) Pain phenotype	Internal consistency	1	222	Inadequate	Very low	+	**Very Low**
	Reliability	1	222	Doubtful	Low	-	
	Measurement error	0		Not evaluated	Not evaluated	?	

(continued)

	Cross-cultural validity / Measurement invariance	1	222	Inadequate	Very low	+	
	Construct validity	1	77	Very good	Moderate	+	
	Structural validity	1	222	Very good	High	-	
	Criterion validity	1	77	Inadequate	Very low	-	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Chronic Pain Acceptance Questionnaire (CPAQ) - PT							
(C) Cognitive factors	Internal consistency	1	104	Inadequate	Very low	?	**Very Low**
	Reliability	0		Not evaluate	Not evaluate	?	
	Measurement error	0		Not evaluate	Not evaluate	?	
	Cross-cultural validity / Measurement invariance	1	104	Inadequate	Very low	?	
	Construct validity	1	104	Inadequate	Very low	?	
	Structural validity	0		Not evaluated	Not evaluated	?	
	Criterion validity	0		Not evaluate	Not evaluate	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Pain Disability Questionnaire (PDQ) – BR							
(C) Cognitive factors	Internal consistency	1	119	Inadequate	Very low	?	**Very Low**
	Reliability	1	119	Inadequate	Very low	+	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	119	Inadequate	Very low	?	
	Construct validity	1	119	Doubtful	Low	+	
	Structural validity	0		Not evaluated	Not evaluated	?	
	Criterion validity	0		Not evaluated	Not evaluated	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Survey of Pain Attitudes (SOPA) – Brief Version BR							
(C) Cognitive factors	Internal consistency	1	69	Inadequate	Very low	?	
	Reliability	1	69	Inadequate	Very low	?	

(continued)

	Measurement error	0		Not evaluated	Not evaluated	?	**Very Low**
	Cross-cultural validity / Measurement invariance	1	69	Inadequate	Very low	?	
	Construct validity	0		Not evaluate	Not evaluate	?	
	Structural validity	0		Not evaluated	Not evaluated	?	
	Criterion validity	0		Not evaluate	Not evaluate	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Chronic Pain Self-efficacy Scale (CPSS) – BR							
(C) Cognitive factors	Internal consistency	1	132	Inadequate	Very Low	+	**Very Low**
	Reliability	0		Not evaluated	Not evaluated	?	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	132	Inadequate	Very low	?	
	Construct validity	1	132	Inadequate	Very low	+	
	Structural validity	1	132	Very good	High	?	
	Criterion validity	1	132	Inadequate	Very low	-	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Pain Self-Efficacy Questionnaire (PSEQ) – PT							
(C) Cognitive factors	Internal consistency	1	174	Very good	High	?	**Very Low**
	Reliability	1	174	Inadequate	Very low	?	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	174	Inadequate	Very low	?	
	Construct validity	1	174	Inadequate	Very low	+	
	Structural validity	1	174	Inadequate	Very low	+	
	Criterion validity	0		Not evaluated	Not evaluated	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Pain Self-efficacy Questionnaire (PSEQ) – BR							

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(C) Cognitive factors	Internal consistency	1	311	Very good	High	+	Very Low
	Reliability	1	311	Inadequate	Very low	?	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	311	Inadequate	Very low	?	
	Construct validity	0		Not evaluated	Not evaluated	?	
	Structural validity	1	311	Very good	High	?	
	Criterion validity	0		Not evaluated	Not evaluated	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Pain-Related Catastrophizing Thoughts Scale (PCTS) – BR							
(C) Cognitive factors	Internal consistency	1	311	Inadequate	Very low	+	Very Low
	Reliability	1	311	Inadequate	Very low	?	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	311	Inadequate	Very low	?	
	Construct validity	0		Not evaluated	Not evaluated	?	
	Structural validity	1	311	Adequate	Moderate	?	
	Criterion validity	1	311	Inadequate	Very low	-	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Pain Catastrophising Scale (PCS) – BR							
(C) Cognitive factors	Internal consistency	1	384	Inadequate	Very low	+	Very Low
	Reliability	1	384	Inadequate	Very low	+	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	384	Doubtful	Low	?	
	Construct validity	1	384	Inadequate	Very low	?	
	Structural validity	1	384	Very good	High	+	

(continued)

	Criterion validity	0		Not evaluated	Not evaluated	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Rolland-Morris Disability Questionnaire (RMDQ) – BR							
(C) Cognitive factors	Internal consistency	1	311	Inadequate	Very low	?	**Very Low**
	Reliability	1	311	Inadequate	Very low	?	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	311	Inadequate	Very low	?	
	Construct validity	1	311	Inadequate	Very low	?	
	Structural validity	0		Not evaluated	Not evaluated	?	
	Criterion validity	1	311	Inadequate	Very low	-	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Brief Pain Inventory (BPI) – PT							
(C) Cognitive factors	Internal consistency	1	214	Inadequate	Very low	?	**Very Low**
	Reliability	0		Not evaluated	Not evaluated	?	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	0		Not evaluated	Not evaluated	?	
	Construct validity	1	214	Very good	High	+	
	Structural validity	1	214	Inadequate	Very low	+	
	Criterion validity	1	214	Inadequate	Very low	-	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Fear Avoidance Beliefs Questionnaire (FABQ) - BR							
(E) Emotional factors	Internal consistency	1	53	Inadequate	Very low	?	**Very Low**
	Reliability	1	53	Doubtful	Very low	+	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity /	1	53	Inadequate	Very low	?	

(continued)

	Measurement invariance						
	Construct validity	0		Not evaluated	Not evaluated	?	
	Structural validity	0		Not evaluated	Not evaluated	?	
	Criterion validity	0		Not evaluated	Not evaluated	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Tampa scale for kinesiophobia (TSK – 18) – BR							
(E) Emotional factors	Internal consistency	1	100	Inadequate	Very Low	?	**Very Low**
	Reliability	1	30	Doubtful	Very Low	+	
	Measurement error	1	100	Doubtful	Moderate	?	
	Cross-cultural validity / Measurement invariance	1	100	Doubtful	Low	?	
	Construct validity	1	100	Doubtful	Low	+	
	Structural validity	0		Not evaluated	Not evaluated	?	
	Criterion validity	0		Not Evaluate	Not Evaluate	?	
	Responsiveness	0		Not Evaluate	Not Evaluate	?	
Tampa scale for kinesiophobia (TSK – 17) – BR							
(E) Emotional factors	Internal consistency	2	180	Inadequate	Very low	?	**Very Low**
	Reliability	2	104	Inadequate	Very Low	+	
	Measurement error	2	150	Doubtful	Moderate	?	
	Cross-cultural validity / Measurement invariance	2	180	Inadequate	Very ow	?	
	Construct validity	2	230	Doubtful	High	-	
	Structural validity	2	104	Inadequate	Very low	-	
	Criterion validity	1	130	Inadequate	Very low	+	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Tampa scale for kinesiophobia (TSK – 13) – PT							
(E) Emotional factors	Internal consistency	1	166	Inadequate	Very Low	?	**Very Low**
	Reliability	1	41	Inadequate	Very Low	+	

(continued)

	Measurement error	1	166	Inadequate	Very Low	?	
	Cross-cultural validity / Measurement invariance	1	166	Inadequate	Very Low	?	
	Construct validity	1	166	Inadequate	Very Low	+	
	Structural validity	1	166	Inadequate	Very Low	?	
	Criterion validity	1	166	Very good	High	+	
	Responsiveness	1	166	Inadequate	Very Low	+	
Depression Anxiety Stress Scales (DASS) – BR							
(E) Emotional factors	Internal consistency	1	311	Inadequate	Very low	?	**Very Low**
	Reliability	1	311	Inadequate	Very low	?	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	311	Inadequate	Very low	?	
	Construct validity	1	311	Very good	High	?	
	Structural validity	0		Not evaluated	Not evaluated	?	
	Criterion validity	1	311	Inadequate	Very low	-	
	Responsiveness	0		Not evaluated	Not evaluated	?	
Chronic Pain Coping Inventory (CPCI) – BR							
(M) Motivation	Internal consistency	2	764	Inadequate	Very low	+/-	**Very Low**
	Reliability	0		Not evaluated	Not evaluated	?	
	Measurement error	0		Not evaluated	Not evaluated	?	
	Cross-cultural validity / Measurement invariance	1	59	Inadequate	Very low	?	
	Construct validity	0		Not evaluated	Not evaluated	?	
	Structural validity	1	705	Very good	High	-	
	Criterion validity	0		Not evaluated	Not evaluated	?	
	Responsiveness	0		Not evaluated	Not evaluated	?	

Discussion

This review identified and categorized, according to the PSCEBSM model of Wijma et al.,[21] the Portuguese versions of SRMs for the biopsychosocial assessment of people with CP. Additionally, the psychometric properties and measurement accuracy of these SRMs were appraised according to the COSMIN guidelines[34]. Nineteen distinct Portuguese versions of international SRMs (n=19) were found in this review. Most of them (n=9) were solely adapted to Brazilian Portuguese. Three SRMs were exclusively adapted to European Portuguese (n=3). Only 7 SRMs have both versions – the LANSS (LANSS-BR; LANSS-PT), TSK (TSK 17-BR; TSK 18-BR; TSK13-PT) and PSEQ (PSEQ-BR; PSEQ-PT). This review also aimed to make recommendations on the best SRMs for each dimension of the PSCEBSM model[21]. It was found that SRMs were mostly validated in single studies and rated with very low-quality of evidence. Moreover, its content validity was not reported which hinders the recommendation on their use. Given this limitation, for the purpose of this review, an overall quality rating for each SRM is presented instead of COSMIN's A, B, C recommendation system (see Methods section above, Overall quality of SRMs subsection, for recall). For each SRM the final result (by applying the "worst score counts" rule) for the risk of bias assessment was rated as "inadequate", for the criteria for good measurement properties was "insufficient" and the certainty of evidence (mGRADE) was very low. Thus, the overall quality of the included SRMs in this review was very low. This outcome is particularly noteworthy for risk of bias, for example, in internal consistency, due to the lack of presentation of error of the theta values or reliability coefficient of estimated latent trait value (index of (subject or item) separation) calculated, which involves Rasch analyses (Table 8 in appendices (5)). In cross-cultural validation studies, articles did not present similar samples for relevant characteristics[34]. In reliability, the three main characteristics of studies that increase the risk of bias were: not presenting if patients were stable in the interim period on the construct to be measured, the time of reapplication, which according to COSMIN should be at least 2 weeks, and if the test administration conditions were similar during the measurements, such as type of administration, environment, and instructions[34].

The SRMs identified in this review were also reported in a recent work by Alebouyed et al. (2024)[64] which aimed to identify patient-reported outcome measures (PROMs) used in clinical

trials assessing interventions for CP. The authors found that in clinical trials of CP interventions the BPI, CSI, DASS, FABQ, RMDQ, and the TSK (TSK-17 and TSK-11) are often used as outcome measures. It is important to note that the systematic review of Alebouyed et al. (2024)[64] was not related to Portuguese versions of SRMs, nevertheless, those often-used instruments have also been adapted to Portuguese language, as shown in this review. Furthermore, our findings on the psychometric properties of the Portuguese versions of these SRMs are in line with the evaluation reported in the systematic review of Alebouyed et al. (2024)[64]. For example, the TSK-11 was rated as 'sufficient' (+) for reliability, hypothesis testing, criterion validity, and responsiveness, but showed 'indeterminate' (?) results for measurement error. Similar results were found in TSK 17-BR version. Likewise, the BPI was rated as 'sufficient' for construct validity and hypothesis testing, while it showed 'indeterminate' (?) results for internal consistency, measurement error, and responsiveness. The remaining PROMs demonstrated three (3/8) or fewer psychometric properties with equivalent ratings.

CSI is another SRM in common between this review and the work of Alebouyed et al. (2024)[64] but only three (3/8) psychometric properties had the same rating according to the criteria for good measurement properties: internal consistency, construct validity, and measurement error. Internal consistency and construct validity were rated as ‘sufficient’ (+), and measurement error was rated as ‘indeterminate’ (?). In the study by Alebouyed et al. (2024)[64], the CSI was rated as ‘sufficient’ (+) for most of the evaluated psychometric properties (6/8). However, in this systematic review, there were 3 (3/8) rated as ‘insufficient’ (-), 3 (3/8) ‘sufficient’ (+), and 2 (2/8) ‘indeterminate’ (?) ratings. Our analysis was only based on one validation study for the CSI, conducted in Brazil (CSI-BR). We found no validation study of the CSI in Portuguese adults. It has only been validated for European Portuguese in adolescents[65] being currently of limited use in the Portuguese adult population with CP. Because central sensitization is a core feature in the assessment of patients with persistent pain and the CSI is a widespread SRM to identify patients with central sensitization[66], futures studies should test this SRM in Portuguese adults with CP.

A Biopsychosocial Evaluation of CP

Assessing and treating patients according to the biopsychosocial model has been recommended in several pain-related clinical guidelines as well as under- and post-graduate

pain curricula relevant to physiotherapists[67–69]. This model also forms the basis of the World Health Organization's International Classification of Functioning, Disability and Health, and the World Physiotherapy (WCPT)[70] specifies that physiotherapy aims to optimize physical, psychological, emotional, and social wellbeing[71], recommending its widespread application. Given the comprehensive nature of the biopsychosocial approach, it is crucial to maintain updated assessment instruments and treatment options to ensure they reflect current research and best practices. By doing so, healthcare providers can effectively address the multifaceted needs of patients, ultimately improving outcomes and enhancing quality of life. The PSCEBSM model[21] outline seven assessment domains: pain phenotype (P), somatic and medical factors (S), cognitive aspects (C), emotional aspects (E), behavioural factors (B), social aspects (S), and motivational aspects (M). In this review, the Portuguese versions of SRMs aiming to assess all these domains were limited to four: pain phenotype (n=3), emotional aspects (n=5), cognitive aspects (n=10), and motivational aspects (n=1). Aspects related to activity limitation and functioning is a relevant construct to be assessed in patients with CP[72], but there is no specific domain in the PSCEBSM model[21]. Nevertheless, "factors related to perceptions regarding the physical and mental aspects of pain and the factors related to perceptions regarding the physical and mental aspects of pain as well as its consequences" [21] are included in the cognitive factors. Two SRMs, PDQ and the RMDQ, assessing physical function/activities of daily living/pain interference were therefore integrated into the cognitive domain in this review. However, measures of limitation of the performance of activities of daily living are now considered a core outcome domain for people with lived experience of CP, along with pain measures (intensity and interference) and quality of life, and, to a lesser extent, physical function, psychological functioning, and physical quality of life[72]. At the time this review was designed and registered though, such core outcome set was not available. Emphasis given to this domain may not have been the greatest in this review due to the inherent limitation of the PSCEBSM model.

The biopsychosocial model proposed by Engel[73] remains the most widely adopted and applied framework for evaluation and treatment of CP due to its ability to integrate multiple dimensions of the human experience. This comprehensive approach results in more holistic and effective patient care. In line with the biopsychosocial model, several resources have been

published to guide and integrate the multiple dimensions of CP namely the PSCEBSM model[21], the IMMPACT[74] and more recently the core outcome set[72].

These frameworks complement each other in terms of the information they provide and their utility in both clinical and research settings, since they were developed intending to overcome a specific need of clinical practice and research - the core outcome set established the minimum set of measures clinical practice, the PSCEBSM model [21] was developed in the specific context of physiotherapy. Thus, they complement each other in terms of information provided and its utility. However, there is a need to gather information on the core outcome set for CP and recommendation of measures for each outcome.

Responsiveness

One significant finding from this review was the lack of evidence on responsiveness, structural validity, measurement error, construct validity, and criterion validity in SRMs findings due to lack of studies assessing these psychometric properties. Only one study[51] included in this review presented data on responsiveness. This lack of studies reporting data on SRMs responsiveness was also found in similar reviews[75, 76]. In a review aiming to evaluate the psychometric proprieties of PROMs for assessing symptoms in hemodialysis[75], the authors reported limited evidence on structural validity, measurement error, and responsiveness. A similar finding arose from the study of Smith et al.[76] that examined the psychometric properties of pain measurements in individuals with dementia. The authors also reported the limited evidence regarding responsiveness, structural validity, and measurement error of many identified measures[76].

Responsiveness is a psychometric propriety of clinical relevance since it gives an understanding of how meaningful the change in the SRMs score is and, therefore the effectiveness of interventions aimed at managing CP[77]. The lack of evidence on this propriety turns the interpretability of changing in scores challenging and limited[78]. Moreover, it has been suggested that this lack of evidence may contribute to the poor adoption of pain measurement tools in practice[33,76]. Thus, the inclusion of responsiveness assessments in future research is essential to enhance the interpretability of SRMs scores and to provide clinicians with valuable insights into the effectiveness of interventions for CP management.

Moreover, conclusions regarding the feasibility, interpretability, and acceptability of SRMs were constrained by the limited information provided by primary studies on these indicators. Specifically, data on critical factors such as completion time, response rate, responsiveness to change over time, and floor and ceiling effects was non-existent. Future research should thoroughly investigate these aspects to better inform the practical application of SRMs in clinical settings.

Cross Cultural Validity

For most SRMs the development and validation processes were imperfectly reported in the relevant publications. Cross-cultural adaptation is essential to ensure the accuracy of SRMs as it enhances the validity and reliability of the data, facilitating meaningful comparisons and better understanding across different populations[79].

All SRMs included in this review were Portuguese versions of instruments originally developed in another language (usually English). Moreover, according to COSMIN guidelines[33], this adaptation involves the assessment of measurement invariance and whether Differential Item Functioning (DIF) occurs, being necessary a follow-up study. Addressing potential DIF is crucial to ensure that these tools are unbiased and equitable across different demographic groups. The adaptation reported in the included studies involved the back-translation method described by Guillemin et al.[80], in 1993, which is not in line with the COSMIN guidelines [33] for the cross-cultural adaptation process. However, it is noteworthy that at the time of the publications, comprehensive guidelines like COSMIN were unavailable. A similar finding was reported recently in the study by Sultan et al.,[81]. Among the studies evaluating PROMs, none adequately assessed cross-cultural validity, even though several translated versions were available.

Future studies

Future studies should focus on expanding the psychometric evaluation of Portuguese versions of SRMs used for biopsychosocial assessment of patients with persistent pain. Specifically, research should aim to validate these SRMs in variety samples and clinical settings of patients with CP to cover the heterogeneity of CP conditions, ensuring their reliability and validity. Longitudinal studies are needed to assess the stability and responsiveness of these

instruments over time. Moreover, longitudinal studies are needed to determine the Minimal Important Change (MIC) scores since data from included studies on SRMs reliability did not cover crucial aspects of this psychometric property to clinical practice, namely, there were a lack of a second administration (test-retest) of the instrument, which hidden the determination of MIC scores of SRMs which limiting the interpretability of clinical changes as meaningful or not. Additionally, exploring the integration of these SRMs into digital platforms could enhance their accessibility and usability in routine clinical practice. By addressing these areas, future research can significantly improve the utility and accuracy of SRMs in the biopsychosocial assessment of persistent pain.

A crucial output of this review, following COSMIN guidelines, would be making recommendations on the best SRMs for each biopsychosocial construct of pain based on their psychometric evidence. However, achieving this objective is currently limited because the SRMs included in this review were generally reported in only one study with methodological quality rating 'inadequate' for risk of bias. Additionally, data on content validity is mandatory to perform such recommendations, but the SRMs included in this review were evaluated based on validation studies that did not present results for content validity. Therefore, to establish recommendations on the most appropriate Portuguese-version of SMRs for each construct related to CP assessment, studies on content validity are needed.

Strengths and limitations

This review has some limitations that need to be acknowledged. Firstly, although Portuguese language was used as an eligibility criterion, we restricted our analysis to only two Portuguese-speaking countries: Brazil and Portugal. Our findings are not generalized to other Portuguese-speaking countries, nevertheless researchers in those nations may benefit from the results of this appraisal to improve their methodological approaches in SRMs studies.

Among the strengths, this was a systematic and registered review using the COSMIN evaluation framework integrated with the GRADE approach. The study design was rigorous, enhancing the transparency and reliability of the review findings, which ensures readers are fully informed about the confidence in the recommendations derived from the evidence. Through systematic assessment of the quality of health measurement instruments, the COSMIN

framework enables a thorough and credible evaluation, strengthening the overall validity of the conclusions[34]. Moreover, it offers a comprehensive and rigorous evaluation of the quality of measurement instruments and the existing evidence. This integration facilitates informed decision-making for healthcare professionals and researchers regarding the utilization of these instruments.

Conclusion

This systematic review provides a comprehensive overview of the quality of measurement properties and methodological quality of SRMs to assess biopsychosocial aspects of CP. The overall quality of evidence for all SRMs was 'very low', which hidden the recommendation of the most evidence-based SMRs for each construct. Currently, there is no sufficient quality evidence to establish the most appropriate Portuguese (Brazilian or European) version of SRMs. There is a need to enhance validation and/or translation procedures for both existing and future measures, adhering to COSMIN guidelines. Studies with better methodological quality in the Portuguese language are necessary to define recommendations on which SRMs have superior psychometric properties for evaluating each pain-related biopsychosocial domain. Despite the existence of robust guidelines for the biopsychosocial evaluation of CP a significant gap persists on its operationalization due to inadequate quality of evidence to identify which instruments have the best psychometric properties, particularly in Portuguese (Brazilian or European) language.

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Appendices

Appendix 1. Search strategy

The search terms 1- “(Central Sensitization Inventory)” OR “(PainDETECT)” OR “(The Leeds Assessment of Neuropathic Symptoms and Signs)” OR “(Douleur Neuropathique 4 Questions)” OR “(Neuropathic Pain Questionnaire)” OR “(Neuropathic Pain Questionnaire Short Form)” OR “(Identity Pain Questionnaire)” OR “(Pain Sensitivity Questionnaire)” OR “(Categorical scales)” OR “(Numerical Rating Scales)” OR “(Visual Analogy Scale)” OR “(Faces pain scale)” OR “(Nottingham Health Profile)” OR “(Brief Pain Inventory)” OR “(Brief Illness Perception Questionnaire)” OR “(Injustice Experience Questionnaire)” OR “(Psychological Inflexibility in Pain Scale)” OR “(State-Trait Anxiety Inventory)” OR “(Graded Chronic Pain Scale)” OR “(McGill Pain Questionnaire)” OR “(The Massachusetts General Hospital Pain Centre’s Pain Assessment Form)” OR “(Regional Pain Scale)” OR “(Pain Disability Index)” OR “(PROMIS pain interference and pain behaviours)” OR “(Functional Independence Measure)” OR “(Beck Depression Inventory)” OR “(Profile of Mood States”) OR “(Symptom Checklist-90 Revised)” OR “(Pain Catastrophizing Scale)” OR “(Coping Strategies Questionnaire)” OR “(The four-item patient health questionnaire for anxiety and depression)” OR “(Patient Health Questionnaire)” OR “(Patient-Health Questionnaire)” OR “(General Anxiety Disorder 7)” OR “(Depression Anxiety and Stress Scales)” OR “(Multidimensional Pain Inventory)” OR “(Patient Global Impression of Change)” OR “(Kessler Psychological Distress Scale)” OR “(Hospital Anxiety and Depression Scale)” OR “(Centre for Epidemiologic Studies Depression Scale)” OR “(Zung Self-Rating Depression Scale)” OR “(Modified Somatic Perception Questionnaire)” OR “(Fear Avoidance Beliefs Questionnaire)” OR “(Tampa Scale for Kinesiophobia)” OR “(Pain Distress Inventory)” OR “(Pain Behaviour Checklist)” OR “(Chronic Pain Values Inventory)” OR “(Pain Anxiety Symptoms Scale)” OR “(Chronic Pain Acceptance Questionnaire)” OR “(Multidimensional Pain Readiness to Change Questionnaire)” OR “Pain Self-Efficacy Questionnaire)” OR “(Chronic Pain Self-Efficacy Scale)” OR “(Chronic Pain Coping Inventory)” OR “(Pain Coping Inventory)” OR “(Cognitive Risk Profile for Pain)” OR “(Biobehavioural Pain Profile)” OR “(Work Limitations Questionnaire)” OR “Work Limitations 26)” OR “(Patient Goal Priority Questionnaire)” OR “(Patient-Specific Functional Scale)” OR “(Functional Assessment Screening Questionnaire)” OR “(Family Impact of Pain Scale)” OR “(Spouse Response Inventory)” OR “(Obstacles to Return-to-work Questionnaire)” OR “(Örebro Musculoskeletal Pain Screening Questionnaire)” OR “(Brief Pain Inventory)” OR “(West Haven–Yale Multidimensional Pain Inventory)” OR “(Canadian Occupational Performance Measure)” OR “(12-item Resumption of Activities of Daily Living)” OR “(5-item Functional Abilities Confidence Scale)” OR “(Treatment Outcomes of Pain Survey)” AND 2- (“Brazilian") OR (“Portuguese”) OR “(Brazil)” OR “(Portugal)” AND (“chronic pain”) OR (“persistent pain") OR “(chronic musculoskeletal pain)” OR “(persistent musculoskeletal pain)” AND 3- “(Psychometric properties)” AND (“self-administered instruments”) OR (“Patient outcome measures”) OR (“PROM´s”) OR “(Patient-reported outcome)” OR AND “Reliability” OR “Validity” OR “Responsiveness” OR “Interpretability”

NOT 4- "cancer", being 1 AND 2 AND 3 NOT 4 • English and Portuguese • Title and Abstract. A systematic literature search in English, Portuguese, and Spanish search will be performed in the electronic databases EMBASE/Scopus, Web of Science, PubMed, SciELO, Google Scholar, and PsycINFO from inception to February 2024. The search was based on the COSMIN search filters to identify studies with psychometric properties linked to terms related to biopsychosocial assessment, chronic/persistent pain, self-administered instruments, or PROM´s. The search strategy was optimized for each electronic database search.

Two national repositories, one Portuguese and one Brazilian, were used to aggregate more information. Searches for master's and doctoral theses were conducted in these repositories.

The Brazilian repository, known as CAPES (Portal of Periodicals of the Coordination for the Improvement of Higher Education Personnel), was one of these sources of grey literature research. The CAPES portal was developed to bring together high-quality scientific material and make it available to the Brazilian academic community[36]. Will be considered one of Brazil's largest virtual scientific collections, which brings together and makes content produced nationally and others signed with international publishers available to educational institutions in the country itself[36].

The Portuguese repository – RCAAP[35] (Portuguese Open Access Scientific Repositories) was used. This portal aims to collect, aggregate, and index open-access scientific content existing in the institutional repositories of national higher education entities and other R&D organizations. RCAAP is a research point with thousands of scientific and academic documents, namely articles from scientific journals, conference communications, theses, and dissertations, distributed across numerous Portuguese repositories[35].

In databases where search terms were limited, such as CAPES and RCAAP, the search was carried out using a smaller number of words. In the case of CAPES (maximum 6 words), the search was carried out with the following words *name of instruments (e.g. "Central Sensitization Inventory") AND "Psychometric properties" AND "Chronic Pain" AND "Portuguese" NOT cancer. In the RCAAP database, due to the limited amount of 3 words, the following were used: *name of instruments (e.g. "Central Sensitization Inventory") AND "Psychometric properties" AND "Portuguese".

In Google Scholar, the search was carried out using only the title, as there was no option to search for the abstract, only the entire text, and there were many studies that were not related to the objective of this review.

Appendix 2. Table 5 - Table on characteristics of the included study populations

		Population			Disease characteristics			Instrument administration			
Self-Reported Measures (SRM)	**Ref**	**N**	**Age Mean (SD, range) yr**	**Gender % female**	**Disease**	**Disease duration mean (SD) months**	**Disease severity**	**Setting**	**Country**	**Language**	**Response rate**
Fear Avoidance Beliefs Questionnaire (FABQ)	Abreu, de Ana Maria et al., 2008	53	45.98 ± 13.03	51	Non-specific CLBP	16.9 ± 14.31	Pain (1 to 9) 5.68 ± 1.90 Disability (1 to 22) 12.55 ± 6.02	outpatient clinics and clinics private	Brazil	Portuguese	100%
Tampa scale for kinesiophobia (TSK)	TSK – 17 Siqueira, Salmela and Guimarães, 2006 (BR)	50	41.98 ± 13.76	76	Non-specific CLBP	57.08 ± 44.46	Roland-Morris (1 to 22) 10.10 ± 5.32 Pain (EQD) 2.04 ± 1.14 (0 to 5)	Community	Brazil	Portuguese	100%
	TSK – 17 Salvador et al., 2021 (BR)	130	45.5 ± 11.1	98.5	FM	113.9 ± 95.9	Pain (NPRS: 0-10 points) 7.6 ± 1.4 Function (PSFS: 0-10 points) 3.9 ± 1.5 Catastrophizing (PCS: 0-52 points) 34.4 ± 12.5 Depression (BDI: 0-63 points) 21.8 ± 6.0	Direct electronic communication	Brazil	Portuguese	100%
	TSK – 18	100	36.88 ± 9.80	100	Chronic TMD	-	Pain intensity 4.35 ± 2.88	Clinic of university	Brazil	Portuguese	100%

(continued)

	Aguiar et al., 2017 (BR)						MFIQ (0 to 52) 15.33 ± 12.00				
	TSK – 13 Cordeiro et al., 2013 (PT)	144	50.55 ± 10.8	63.3	Non-specific CLBP	≥ 12 weeks	VAS (pain score 0 -100) 62.6 ± 19.4	Physiotherapy clinics	Portugal	Portuguese	100%
Leeds Assessment of Neuropathic Symptoms and Signs (LANSS)	Barbosa et al., 2013 (PT)	167	55.31 ± 13.39	73.65	Nociceptive or NEP	52.51 ± 53.70	VAS (0–100) 72.12 ± 24.51	Clinic	Portugal	European Portuguese	96.40%
	Schestatsky et al., 2011 (BR)	90	Nociceptive pain: 55.5 ± 14.2 Mixed pain: 48.7 ± 10.6 Neuropathic pain: 54.0 ± 12.0	-	Nociceptive, mixed pain or neuropathic pain	-	VAS-INT (0–10) Nociceptive pain: 6.7 ± 2.2 Mixed pain: 6.9 ± 2.5 Neuropathic pain: 7.6 ± 1.5	Clinic and Hospital	Brazil	Portuguese	100%
Central Sensitization Inventory (CSI)	Caumo et al., 2017 (BR)	222	FM 49.94 ± 10.95 MPS 43.31 ± 11.51 OA 67.03 ± 8.24 CTTH 36.23 ± 12.18	75.67	FM, MPS, OA and CTTH	-	VAS (0-10) FM 6.80 ± 1.70 MPS 6.90 ± 2.67 OA 6.61 ± 1.89	Local community care units, institutional chronic pain clinic, hospital units, and by phone and newspaper	Brazil	Portuguese	100%
Chronic Pain Acceptance Questionnaire (CPAQ)	Costa and Gouveia 2009 (PT)	104	Woman 59.53 ± 14.60 Man	79.80	FM or no specific CP	-	-	Convenience sample	Portugal	European Portuguese	-

(continued)

			60.81 ± 13.23								
Pain Disability Questionnaire (PDQ)	Giordano et al., 2012 (BR)	119	46.9 ±9.2	80.6	Chronic musculoskeletal disorders	44.43 ± 47.55	NPS 0-10 8.4 ±1.4	Clinic	Brazil	Portuguese	-
Survey of pain attitudes (SOPA) – brief version	Pimenta et al., 2004 (BR)	69	50.8 ±15.4	71	CP	-	-	Clinic and hospital	Brazil	Portuguese	-
Pain Self-Efficacy Questionnaire (PSEQ)	Valente, Ribeiro, and Jensen 2008 (PT)	174	59.18 ± 16.11	60.2	Chronic musculoskeletal pain	3 months to 1 year 36± 21.2 1 to 2 years 23 ±13.5 2 to 10 years 45 ± 26.5 More than 10 years 66 ± 38.8	Pain Intensity (NRS 0-10) 4.59 ± 2.18	Health care institution	Portugal	European Portuguese	-
Pain Self-Efficacy Questionnaire (PSEQ)	Sardá et al., 2006 (BR)	311	48.9 ± 14.06	74	CP	48.03 ± 19.21	Pain Intensity (NRS 0-10) 6 ± 2.4	Clinic	Brazil	Portuguese	89.36
Chronic Pain Self-Efficacy Scale (CPSS)	Salvetti and Pimenta, 2005 (BR)	132	45,91 ± 12,68	87.9	Chronic non-cancer pain	88.86 ± 92.46	6.83 ± 2.3	Clinic, ambulatory and hospital	Brazil	Portuguese	-

(continued)

Depression Anxiety Stress Scales (DASS)	Sardá et al., 2008 (BR)	311	48.9 ± 14.06	74	CP	12.2% 3 months to 1 year. 19.3% between 1 and 2 years. 28% between 3 and 5 years. 12.5% from 6 to 9 years and 28% for more 10 years	Pain Intensity (NRS 0-10) 6 ± 2.4	Clinic	Brazil	Portuguese	89.36
Pain-Related Catastrophizing Thoughts Scale (PCTS)	Sardá et al., 2008 (BR)	311	48.9 ± 14.06	74	CP	48.03	Pain Intensity (NRS 0-10) 6 ± 2.4	Institutions	Brazil	Portuguese	89.36
Pain Catastrophizing Scale (PCS)	Sehn et al., 2012 (BR)	384	50.23 ± 17.10	82.55	CTH and FM	-	-	Clinic, hospital, and Palliative care	Brazil	Portuguese	-
Roland Morris Disability Questionnaire (RMDQ)	Sardá et al., 2010 (BR)	348	48.9 ± 14,06	74	CP	48.03	Pain Intensity (NRS 0-10) 6 ± 2.4	Clinic of pain	Brazil	Portuguese	89.36
Chronic Pain Coping	Souza et al., 2018 (BR)	59	54.5	66.01	CP	-	-	Outpatient neurology,	Brazil	Portuguese	-

(continued)

Inventory (CPCI)								orthopedics, physiatrics and rheumatology clinics of a public hospital			
	Souza et al., 2021 (BR)	705	53.81 ± 14.26	68.4	CP Nonspecific	6 to 11 months 8.1% 1 to 5 years 30.8 1 to 5 years 19.3 More than 10 years 41.8	-	Outpatients in neurology, orthopedics, physiatrics and rheumatology specialties of a university hospital	Brazil	Portuguese	-
Brief Pain Inventory (BPI)	Valente, Ribeiro, and Jensen 2012 (PT)	214	60.18 ± 14.89	66.1	Chronic musculoskeletal pain	2 years 71.4% More 10 years 38.2%	Pain Intensity (NRS 0-10) 4.56 ± 2.50	Health care institutions	Portugal	European Portuguese	-

CLBP, chronic low back pain; TMD, temporomandibular disorders; MFIQ, Mandibular Functional Impairment Questionnaire; NPRS, Numerical Pain Rating Scale; PSFS, Patient-Specific Functional Scale; PCS, Pain Catastrophizing Scale; BDI, Beck Depression Inventory; FM, Fibromyalgia; NEP, Peripheral Neuropathic Pain; VAS, Visual Analog Scale; MPS, Myofascial Pain Syndrome; OA, Osteoarthritis; CTTH, Chronic Tension-Type Headache; CP, Chronic Pain; NPS, Numeral Pain Scale; CTH, Chronic Tensional Headache; Other characteristics which may be extracted are 'study design', 'patient selection'.

Appendix 3. Table 6 - Information to extract on interpretability of Self-Reported Measures (SRMs)

Self-Reported Measure (SRM) - (ref)	Distribution of scores in the study population	Percentage of missing items and percentage of missing total scores	Floor and ceiling effects	Scores and change scores available for relevant (sub)groups	Minimal important change (MIC) or minimal important difference (MID)	Information on response shift
Fear Avoidance Beliefs Questionnaire (FABQ)- BR Abreu, de Ana Maria et al., 2008	FABQ-Work (0 to 42) 27.72 ± 10.75 FABQ-Phys (0 to 24) 13.08 ± 7.31	5 items were excluded from the sum of the final score, but are still part of the questionnaire	-	-	-	-
Tampa Scale for Kinesiophobia (TSK – 17) - BR Siqueira, Salmela and Guimarães, 2006	One group only (22 to 57) 39.18 ± 9.46	-	-	-	-	-
Tampa Scale for Kinesiophobia (TSK-17) - BR Salvador et al., 2021	(TSK-11: 11 to 44) Baseline 30.6 ± 6.8 15- day assessment 30.3 ± 6.9	-	No ceiling and floor effects were detected	-	Minimal detectable change 6.16 (not classified)	TSK-11 (11 to 44) Baseline 30.6 ± 6.8 8-weeks assessment 24.6 ± 7.0
Tampa scale for kinesiophobia – (TSK -18) - BR Aguiar et al., 2017	22 to 57 31.14 (29.99 ± 32.29)	-	None ceiling and floor effects were observed.	-	smallest detectable change (SDC) 4.30	-
Tampa Scale for Kinesiophobia (TSK – 13) - PT Cordeiro et al., 2013	TSK - PT total score 33.11 ± 7.26	-	-	TSK - PT total score 33.11 ± 7.26 TSK re-test (n= 41) 33.51 ± 7.08	-	-
Leeds Assessment of Neuropathic Symptoms	Neuropathic pain 18.62 ± 5.10 Non- neuropathic pain 8.74 ± 5.73	-	-	Test Mean 14.53 ± 7.17 Re-test Mean 14.71 ± 7.00	-	-

(continued)

and Signs (LANSS) – PT Barbosa et al., 2013						
Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) - BR Schestatsky et al., 2011	Neuropathic pain 19.1 ± 3.3 Nociceptive pain 7.3 ± 4.5 Mixed pain 13.9 ± 3.7	-	-	LANSS total scores were different between groups (F [2.87] = 82.24; P < 0.001).	-	-
Central Sensitization Inventory (CSI) - BR Caumo et al., 2017	Healthy controls (n=63) 37.14 ± 15.01 Osteoarthritis (n=31) 39.53 ± 16.48 Myofascial pain syndrome (n=65) 43.13 ± 15.53 Chronic tension-type headache (n=53) 46.13 ± 15.83 Fibromyalgia (n=73) 58.30 ± 14.56	-	-	-	-	-
Chronic Pain Acceptance Questionnaire (CPAQ) - PT Costa and Gouveia 2009	More depression vs Less depression (42.64 ± 18.29 vs 64.21 ± 19.87, p<0.05) More anxiety vs Less anxiety	-	-	-	-	-

(continued)

	(43.51 ± 17.83 vs 61.42 ± 21.94, p<0.05) More stress vs Less stress (44.39 ± 20.83 vs 62.66 ± 19.83, p< 0.05)					
Pain Disability Questionnaire (PDQ) - BR Giordano et al., 2012	Subjects with disorders Musculoskeletal PDQ (0 to 150) Total 89.6 (±29.2) Functional Condition 55.1 ±19.4 Psychosocial Component 34.5 ±12.4 Subjects without disorders Total 15.9 ±3.4 Functional condition 9.5 ± 2.0 Psychosocial component 6.3 ± 1.4	-	-	-	Total PDQ (0-150) Minimum value =0 Maximum value=150 Functional Condition (0-90) Minimum value =16 Maximum value=90 Psychosocial component (0 – 60) Minimum value =8 Maximum value=60	
Survey of pain attitudes (SOPA) – brief version - BR Pimenta et al., 2004	-	Physical damage 1 item excluded	-	-	-	-

(continued)

Chronic Pain Self-Efficacy Scale (CPSS) - BR Salvetti and Pimenta, 2005	-	-	-	-	-	-
Pain Self-Efficacy Questionnaire (PSEQ) - BR Sardá et al., 2006	PSEQ mean score 34.8 ± 14.8	Those questionnaires with missing items >10 per cent of the total were excluded from the final sample.	-	No significant differences were found between the initial and the final sample for age, sex and level of education	-	-
Pain Self-Efficacy Questionnaire (PSEQ) - PT Valente, Ribeiro, and Jensen, 2008	Self-Efficacy (P-PSEQ) 40.83 ± 11.31	-	-	-	Min – Max 6-60	-
Depression Anxiety Stress Scale (DASS) - BR Sardá et al., 2008	DASS (0 – 42) Sample: 14.03 ± 12.02	Questionnaires with more than 10% of missing items.	Floor and ceiling percentages were respectively 7.7% and 1.6%, suggesting a higher percentage of lower scores than higher scores.	No significant differences were found between the initial and the final sample for age, sex and level of education	-	-
Pain-Related Catastrophizing Thoughts Scale (PCTS) - BR Sardá et al., 2008	CTS (0 – 5) 2.38 ± 1.38	-	-	No significant difference was observed in the mean score of CTS among patients with different pathologies (for instance, rheumatoid arthritis, F=1.96; p=0.05).	-	-
Pain Catastrophizing Scale (PCS) - BR	PCS (0 – 52) 8.31 ± 2.40	There were no missing data for any item.	There is minimal ceiling effect of the highest score	-	-	-

(continued)

Sehn et al., 2012			possible in the BP-PCS and subscales and total scores. Floor effect for the lowest score possible was 0.9% for the rumination subscale and 1.8% for the total BP-PCS			
Roland Morris Disability Questionnaire (RMDQ) - BR Sardá et al., 2010	QIRM (0 – 24) 12.03 ± 6.2	-	Floor (1.0%) Ceiling (1.9%)	There were also significant differences in the means between the group with a higher education level and the group with 4 to 8 years of education (means were 12.03 and 14.55, respectively.	-	-

(continued)

Chronic Pain Coping Inventory (CPCI) - BR Souza et al., 2018 Souza et al., 2021	CPCI scales scores (0–7) Relaxation (7) 1.64 ± 1.28 Task Persistence (6) 4.27 ± 1.90 Exercise/Stretching (12) 1.53 ± 1.81 Seeking Social Support (8) 2.37 ± 1.76 Pacing (6) 4.06 ± 2.25 Coping Self-statements (11) 4.27 ± 1.81 Guarding (9) 3.30 ± 1.83 Asking for Assistance (4) 2.23 ± 2.22 Resting (7) 3.21 ± 1.82	Less than 1% of the data were missing.	-	-	-	-
Brief Pain Inventory (BPI) - PT Valente, Ribeiro, and Jensen, 2012	BPI Total Interference scale 4.27 ± 2.50 BPI items general activity 4.86 ± 2.83 Mood 4.08 ± 2.96 Walking ability 4.76 ± 2.94	-	-	-	-	-

(continued)

	Normal work 5.04 ± 3.02 Relations with people 2.91 ± 3.03 Sleep 4.35 ± 3.41 Enjoyment of life 3.67 ± 3.51					

Appendix 4. Table 7 - Information to extract on feasibility of Self-Reported Measures (SRMs)

Feasibility aspects	**Fear Avoidance Beliefs (FABQ)- BR** Abreu, de Ana Maria et al., 2008	**Tampa scale for kinesiophobia (TSK – 17) - BR** Siqueira, Salmela and Guimarães, 2006 Salvador et al., 2021	**Tampa scale for kinesiophobia (TSK – 18) - BR** Aguiar et al., 2017	**Tampa Scale for Kinesiophobia – (TSK – 13) - PT** Cordeiro et al., 2013	**Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) - BR** Schestatsky et al., 2011	**Central Sensitization Inventory (CSI) - BR** Caumo et al., 2017	**Chronic Pain Acceptance Questionnaire (CPAQ)- PT** Costa and Gouveia, 2009	**Pain Disability Questionnaire (PDQ) - BR** Giordano et al., 2012	**Survey of pain attitudes (SOPA) – brief version - BR** Pimenta et al., 2004	**Chronic Pain Self-Efficacy Scale (CPSS) - BR** Salvetti and Pimenta, 2005	**Pain Self-Efficacy Questionnaire (PSEQ) - BR** Sardá et al., 2006
Patient's comprehensibility	Without verbalizing difficulties	-	-	Short, quick and easy to answer, understandable, useful, and suitable	-	-	-	Easy understanding	-	-	Without difficulty
Clinician's comprehensibility	-	-	-	Short, quick and easy to answer, understandable, useful, and suitable	-	-	-	-	-	-	-
Type and ease of administration	Self-administered, supervised	Self-administered	Self-administered	Self-administered	semi-structured interview	Self-administered questionnaire. Easy-to-administer	Self-administered questionnaire	Self-administered questionnaire	Self-administered questionnaire	Self-administered questionnaire	Self-administered questionnaire

(continued)

Length of the instrument	16 items	17 items	18 items	11 items	7 items grouped in 2 sections. 2 items involving sensory tests	25 items. Part A: questions Part B: symptoms	20 items, 2 sub scales.	15 items 2 domains	30 items, 7 domains of beliefs and attitudes towards pain	22 items and divided into 3 factors or domains	10 items 0 - 6 numerical rating scales
Completion time	-	-	-	4 – 6 minutes	-	-	-	6 minutes and 20 seconds	-	-	-
Patient's required mental and physical ability level	Literate and without irreversible visual deficits.	-	-	Yes ability to read or write Portuguese fluently	Yes. Not be blind or deaf	Yes	-	Must be able to communicate effectively and/or be literate	Adequate physical and understanding conditions	Yes	Physical or cognitive disability
Ease of standardization	Yes, higher scores greater fear	Yes, higher values reflect greater fear of movement	Yes, higher values reflect greater fear of movement	Yes, higher values reflect greater fear of movement	cutoff point of 12 (neuropathic pain)	Scores 0 – 52, scores >40 indicates the presence of central sensitisation	Yes, higher values reflect greater Acceptance of Pain	Yes. Mild/moderate (0-70); severe (71-100); and extreme (101-150)	There are no cutoff points.	The maximum possible score is 300 and the minimum is 30.	Higher scores (0-60) reflect stronger self-efficacy beliefs
Ease of score calculation	Sum of each item within the subscales	Sum of each item within the subscales and 4 of the items are	Sum of each item within the subscales and 4 of the items are	Sum of each item	Sum of all points	Yes. Sum of all points more symptoms	Yes. Sum of all points	Yes. Sum of all points	Yes. Sum of the points from the answers for each item,	Yes. Sum of all factors gives the total score of the scale.	Yes. Sum of all factors gives the total score of the scale.

(continued)

		negatively worded and reversely scored.	negatively worded and reversely scored.						divided by the number of items answered. However, there are items where the sum must be inverted		
Copyright	-	-	-	-	-	-	-	-	-	-	John Wiley & Sons, Ltd.
Cost of an instrument	-	-	-	-	-	-	-	-	-	-	-
Required equipment	-	-	-	-	Yes	-	-	-	-	-	-
Availability in different settings	-	Yes	Yes	Yes	-	Yes	-	-	Yes	Yes	Yes
Regulatory agency's requirement for approval	-	-	-	-	-	-	-	-	-	-	-

(continued)

Feasibility aspects	**Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) - PT** Barbosa et al., 2013	**Depression Anxiety Stress Scale (DASS) - BR** Sardá et al., 2008	**Pain-Related Catastrophizing Thoughts Scale (PCTS) - BR** Sardá et al., 2008	**Pain Catastrophizing Scale (PCS) - BR** Sehn et al., 2012	**Roland Morris Disability Questionnaire (RMDQ) - BR** Sardá et al., 2010	**Chronic Pain Coping Inventory (CPCI) - BR** Souza et al., 2018	**Chronic Pain Coping Inventory (CPCI) - BR** Souza et al., 2021	**Brief Pain (BPI) - PT** Valente, Ribeiro, and Jensen, 2012	**Pain Self-Efficacy Questionnaire (PSEQ) - PT** Valente, Ribeiro, and Jensen, 2008
Patient's comprehensibility	-	-	-	-	-	-	-	Simplicity	Without difficulty
Clinician's comprehensibility	-	-	-	-	-	-	-	Easy administration	-
Type and ease of administration	semi-structured interview	Self-administered questionnaire	-	Self-administered questionnaire	Self-administered questionnaire	Self-administered questionnaire	Structured interview	-	Self-administered questionnaire
Length of the instrument	7 items grouped in 2 sections. 2 items involving sensory tests	3 scales (depression, anxiety and stress) and 42 items, ranging from 0 to 3	Catastrophizing 9 items	13 items	24 items	70 items	70 items	7 daily life activities	10 items 0 - 6 numerical rating scales
Completion time	-	-	-	-	5 minutes	15 minutes	15 minutes	Its brevity	-
Patient's required mental and physical ability level	Yes. Not be blind or deaf	-	-	-	-	Read, write and to communicate orally independently	Read, write and to communicate orally independently	-	Physical or cognitive disability

(continued)

Ease of standardization	cutoff point of 12 (neuropathic pain)	-	-	-	0 no disability 24 severe disabilities	Higher values indicate higher levels of use of that CS type	Higher values indicate higher levels of use of that CS type	Easily	Higher scores (0-60) reflect stronger self-efficacy beliefs
Ease of score calculation	Sum of all points	Total scores of each scale consist of the sum of the items, and is scored separately	-	sum of the corresponding items and the total score is computed by summation of all items.	Easy. Sum all the items	The sum of the items for each scale	The sum of the items for each scale	-	Yes. Sum of all factors gives the total score of the scale.
Copyright	-	-	-	-	-	Was transferred to a health testing company, Psychological Assessment Resources (PAR).	Psychological Assessment Resources (PAR), which owns the copyright to the CPCI, granted permission to use the CPCI-Brazilian version in this study	By the Official College of Psychologists of Madrid	-
Cost of an instrument	-	-	-	-	-	-	-	-	-
Required equipment	Yes	-	-	-	-	-	-	-	-
Availability in different settings	-	Yes	-	-	Yes	Yes	Yes	Yes	Yes

(continued)

Regulatory agency's requirement for approval	-	-	-	-	--	-	-	-	-

Appendix 5. Table 8 - Table on results of studies on measurement properties

Fear Avoidance Beliefs Questionnaire (FABQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Abreu, de Ana Maria et al., 2008	Brazil (Portuguese)	-	NA	?	53	Very Low	Cronbach's α 0.80-0.90 (+)	**53**	Very Low	?	53	Very Low	ICC= 0.84-0.91 (+)
Pooled or summary result (overall rating)		-	**NA**	**?**	**53**	**Very Low**	**?**	53	**Very Low**	**?**	**53**	**Very Low**	**+**

Tampa scale for kinesiophobia (TSK – 17)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Siqueira, Salmela and Guimarães, 2006	Brazil (Portuguese)	50	Very Low	(-)	50	Very Low	Cronbach's α 0.95 (+)	**50**	Low	?	50	Very Low	ICC = >0.80 (+)
Salvador et al., 2021	Brazil (Portuguese)	54	Very Low	(-)	130	Very Low	α Cronbach's α 0.77 (+)	**130**	Low	?	54	Very Low	ICC = 0.85 (+)
Pooled or summary result (overall rating)		**104**	**Very Low**	**(-)**	**180**	**Very Low**	**?**	180	**Low**	**?**	**104**	**Very Low**	**+**

Tampa scale for kinesiophobia (TSK – 18)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Aguiar et al., 2017	Brazil (Portuguese)	-	NA	?	100	Very Low	Cronbach's α 0.78 (+)	**100**	Low	?	30	Very Low	ICC 0.95 (+)
Pooled or summary result (overall rating)		-	**NA**	**?**	**100**	**Very Low**	**?**	100	**Low**	**?**	**30**	**Very Low**	**+**

Tampa scale for kinesiophobia (TSK – 13)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Cordeiro et al., 2013	Portugal (European Portuguese)	166	Very Low	?	166	Very Low	Cronbach's α 0.82 (+)	166	Very Low	?	41	Very Low	ICC = 0.99 (+)
Pooled or summary result (overall rating)		**166**	**Very Low**	**?**	**166**	**Very Low**	**?**	**166**	**Very Low**	**?**	**41**	**Very Low**	**+**

Leeds Assessment of Neuropathic Symptoms and Signs (LANSS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Barbosa et al., 2013	Portugal (European Portuguese)	-	NA	?	167	Very Low	Cronbach's α 0.77 (+)	**167**	Very Low	?	160	Low	ICC= 0.77 (+)
Pooled or summary result (overall rating)		-	**NA**	**?**	**167**	**Very Low**	**(?)**	**167**	**Very Low**	**?**	**160**	**Low**	**(+)**

Leeds Assessment of Neuropathic Symptoms and Signs (LANSS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Schestatsky et al., 2011	Brazil (Portuguese)	-	NA	?	90	Very Low	Cronbach's α 0.77 (+)	90	Very Low	(-)	90	Very Low	ICC= 0.97 (+)
Pooled or summary result (overall rating)		-	**NA**	**?**	**90**	**Very Low**	**(?)**	**90**	**Very Low**	**(-)**	**90**	**Very Low**	**(+)**

Central Sensitization Inventory (CSI)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Caumo et al., 2017	Brazil (Portuguese)	222	High	CFA 0.40 (-)	222	Very Low	Cronbach's α 0.91 (+)	222	Very Low	(+)	222	Low	ICC = 0.68 (-)
Pooled or summary result (overall rating)		**222**	**High**	**(-)**	**222**	**Very Low**	**+**	**222**	**Very Low**	**+**	**222**	**Low**	**(-)**

Chronic Pain Acceptance Questionnaire (CPAQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Costa and Gouveia, 2009	Portugal (European Portuguese)	-	NA	?	104	Very Low	Cronbach's α 0.91 (+)	104	Very Low	?	-	NA	?
Pooled or summary result (overall rating)		-	**NA**	**?**	**104**	**Very Low**	**?**	**104**	**Very Low**	**?**	**-**	**NA**	**?**

Pain Disability Questionnaire (PDQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Giordano et al., 2012	Brazil (Portuguese)	-	NA	?	119	Very Low	Cronbach's α 0.86 (+)	**119**	Very Low	?	119	Very Low	ICC = 0.95 (+)
Pooled or summary result (overall rating)		-	**NA**	**?**	**119**	**Very Low**	**(?)**	119	**Very Low**	**?**	**119**	**Very Low**	**(+)**

Survey of pain attitudes (SOPA) – brief version	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Pimenta et al., 2004	Brazil (Portuguese)	-	NA	?	69	Very Low	Cronbach's α 0.55 – 0.89	**69**	Very Low	?	**69**	Very Low	?
Pooled or summary result (overall rating)		-	**NA**	**?**	**69**	**Very Low**	**?**	**69**	**Very Low**	**?**	**69**	**Very Low**	**?**

Chronic Pain Self-efficacy Scale (CPSS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Salvetti and Pimenta, 2005	Brazil (Portuguese)	132	High	?	132	Very Low	Cronbach's α 0.76 (+)	**132**	Very Low	?	-	NA	?
Pooled or summary result (overall rating)		132	**High**	**?**	**132**	**Very Low**	**+**	132	**Very Low**	**?**	**-**	**NA**	**?**

Pain Self-Efficacy Questionnaire (PSEQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Valente, Ribeiro, and Jensen 2008	Portugal (European Portuguese)	174	Very Low	RMSEA 0.14 (+)	174	High	Cronbach's α 0.88 (+)	174	Very Low	?	174	Very Low	?
Pooled or summary result (overall rating)		**174**	**Very Low**	**+**	**174**	**High**	**?**	**174**	**Very Low**	**?**	**174**	**Very Low**	**?**

Pain Self-Efficacy Questionnaire (PSEQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sardá et al., 2006	Brazil (Portuguese)	311	High	?	311	High	Cronbach's α 0.90 (+)	311	Very low	?	311	Very Low	?
Pooled or summary result (overall rating)		311	**High**	**?**	**311**	**High**	**+**	311	**Very Low**	**?**	**311**	**Very Low**	**?**

Depression Anxiety Stress Scales (DASS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sardá et al., 2008	Brazil (Portuguese)	-	NA	?	311	Very Low	Cronbach's α 0.96 (+)	311	Very low	?	311	Very Low	?
Pooled or summary result (overall rating)		-	**NA**	**?**	**311**	**Very Low**	**?**	311	**Very Low**	**?**	**311**	**Very Low**	**?**

Pain-Related Catastrophizing Thoughts Scale (PCTS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sardá et al., 2008	Brazil (Portuguese)	311	Moderate	?	311	Very Low	Cronbach's α 0.89 (+)	311	Very Low	?	311	Very Low	?
Pooled or summary result (overall rating)		311	**Moderate**	**?**	**311**	**Very Low**	**+**	**311**	**Very Low**	**?**	**311**	**Very Low**	**?**

Pain Catastrophizing Scale (PCS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sehn et al., 2012	Brazil (Portuguese)	384	High	RMSEA 0.075-0.090 (+)	384	Very Low	Cronbach's α 0.91 (+)	384	Low	?	384	Very Low	ICC = 0.92 (+)
Pooled or summary result (overall rating)		**384**	**High**	**+**	**384**	**Very Low**	**+**	384	**Low**	**?**	**384**	**Very Low**	**+**

Roland Morris Disability Questionnaire (RMDQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sardá et al., 2010	Brazil (Portuguese)	-	NA	?	311	Very Low	Cronbach's α 0.90 (+)	311	Very Low	?	311	Very Low	?
Pooled or summary result (overall rating)		-	**NA**	**?**	**311**	**Very Low**	**?**	**311**	**Very Low**	**?**	**311**	**Very Low**	**?**

Chronic Pain Coping Inventory (CPCI)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Souza et al., 2018	Brazil (Portuguese)	-	NA	?	59	Very Low	Cronbach's α 0.47-0.95	59	Very Low	?	-	NA	?
Souza et al., 2021	Brazil (Portuguese)	705	High	RMSEA <0.10 (-)	705	Very Low	Cronbach's α 0.56-0.92	-	NA	?	-	NA	?
Pooled or summary result (overall rating)		**705**	**High**	**(-)**	**764**	**Very Low**	**+/-**	**59**	**Very Low**	**?**	**-**	**NA**	**?**

Brief Pain Inventory (BPI)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Structural validity			Internal consistency			Cross-cultural validity\ measurement invariance			Reliability		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Valente, Ribeiro, and Jensen 2012	Portugal (European Portuguese)	214	Very Low	CFI = 1 (+)	214	Very Low	Cronbach's α 0.91 (+)	**-**	NA	?	-	NA	?
Pooled or summary result (overall rating)		**214**	**Very Low**	**+**	**214**	**Very Low**	?	-	**NA**	**?**	**-**	**NA**	**?**

Fear Avoidance Beliefs Questionnaire (FABQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Abreu, de Ana Maria et al., 2008	Brazil (Portuguese)	**-**	NA	?	**-**	NA	?	**-**	NA	?	**-**	NA	?
Pooled or summary result (overall rating)		-	**NA**	**?**	-	**NA**	**?**	-	**NA**	**?**	-	**NA**	**?**

Tampa scale for kinesiophobia (TSK)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		N	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Siqueira, Salmela and Guimarães, 2006	Brazil (Portuguese)	50	Moderate	?	-	NA	?	-	NA	?	-	NA	?
Salvador et al., 2021	Brazil (Portuguese)	-	NA	?	130	Very Low	ICC=0.84 (+)	130	High	40%(-)	-	NA	?
Pooled or summary result (overall rating)		**50**	**Moderate**	?	**130**	**Very Low**	**+**	**130**	**High**	(-)	**-**	**NA**	**?**

Tampa scale for kinesiophobia (TSK)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Aguiar et al., 2017	Brazil (Portuguese)	100	Moderate	?	-	NA	?	100	Low	84% (+)	-	NA	?
Pooled or summary result (overall rating)		**100**	**Moderate**	?	**-**	**NA**	**?**	**100**	**Low**	(+)	**-**	**NA**	**?**

Tampa scale for kinesiophobia (TSK)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Cordeiro et al., 2013	Portugal (European Portuguese)	166	Very Low	?	166	High	+ Spearman's correlation 0.691 (VAS pain) 0.772 (VAS confidence)	166	Very Low	100% +	166	Very Low	100% +
Pooled or summary result (overall rating)		**166**	**Very Low**	**?**	**166**	**High**	**+**	**166**	**Very Low**	**+**	**166**	**Very Low**	**+**

Leeds Assessment of Neuropathic Symptoms and Signs (LANSS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Barbosa et al., 2013	Portugal (European Portuguese)	-	NA	?	-	NA	?	-	NA	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**-**	**NA**	**?**	**-**	**NA**	**?**	**-**	**NA**	**?**

Leeds Assessment of Neuropathic Symptoms and Signs (LANSS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Schestatsky et al., 2011	Brazil (Portuguese)	-	NA	?	-	NA	?	90	Very Low	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**-**	**NA**	**?**	**90**	**Very Low**	**?**	**-**	**NA**	**?**

Central Sensitization Inventory (CSI)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Caumo et al., 2017	Brazil (Portuguese)	-	NA	?	77	Very Low	ICC= 0.68 (-)	77	Moderate	100% (+)	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**77**	**Very Low**	**-**	**77**	Moderate	**+**	**-**	**NA**	**?**

Chronic Pain Acceptance Questionnaire (CPAQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Costa and Gouveia, 2009	Portugal (European Portuguese)	-	NA	?	-	NA	?	104	Very Low	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**-**	**NA**	**?**	**104**	**Very Low**	**?**	**-**	**NA**	**?**

Pain Disability Questionnaire (PDQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Giordano et al., 2012	Brazil (Portuguese)	-	NA	?	-	NA	?	119	Low	100% (1 hip) (+)	119	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**-**	**NA**	**?**	**119**	**Low**	**+**	**119**	**NA**	**?**

Survey of pain attitudes (SOPA) – brief version	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Pimenta et al., 2004	Brazil (Portuguese)	-	NA	?	-	NA	?	-	NA	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**-**	**NA**	**?**	**-**	**NA**	**?**	**-**	**NA**	**?**

Chronic Pain Self-efficacy Scale (CPSS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Salvetti and Pimenta, 2005	Brazil (Portuguese)	-	NA	?	132	Very Low	Pearson)= - 0.55 (-)	132	Very Low	100% (2 hip) (+)	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**132**	**Very Low**	**-**	**132**	**Very Low**	**+**	**-**	**NA**	**?**

Pain Self-Efficacy Questionnaire (PSEQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Valente, Ribeiro, and Jensen 2008	Portugal (European Portuguese)	-	NA	?	-	NA	?	174	Very Low	100% (3 hip) (+)	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**-**	**NA**	**?**	**174**	**Very Low**	**+**	**-**	**NA**	**?**

Pain Self-Efficacy Questionnaire (PSEQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sardá et al., 2006	Brazil (Portuguese)	-	NA	?	-	NA	?	-	NA	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**-**	**NA**	**?**	**-**	**NA**	**?**	**-**	**NA**	**?**

Depression Anxiety Stress Scales (DASS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sardá et al., 2008	Brazil (Portuguese)	-	NA	?	311	Very Low	Pearson=0.59 (-)	311	High	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**311**	**Very Low**	**(-)**	**311**	**High**	**?**	**-**	**NA**	**?**

Pain-Related Catastrophizing Thoughts Scale (PCTS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sardá et al., 2008	Brazil (Portuguese)	-	NA	?	311	Very Low	Pearson =0.32 (-)	-	NA	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**311**	**Very Low**	**(-)**	**-**	**NA**	**?**	**-**	**NA**	**?**

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Pain Catastrophizing Scale (PCS)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sehn et al., 2012	Brazil (Portuguese)	-	NA	?	-	NA	?	384	Very Low	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**-**	**NA**	**?**	**384**	**Very Low**	**?**	**-**	**NA**	**?**

Roland Morris Disability Questionnaire (RMDQ)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Sardá et al., 2010		-	NA	?	311	Very Low	Pearson's r = 0.34 – 0.64 (-)	311	Very Low	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**311**	**Very Low**	**(-)**	**311**	**Very Low**	**?**	**-**	**NA**	**?**

Chronic Pain Coping Inventory (CPCI)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)	n	Meth qual	Result (rating)
Souza et al., 2018	Brazil (Portuguese)	-	NA	?	-	NA	?	-	NA	?	-	NA	?
Souza et al., 2021	Brazil (Portuguese)	-	NA	?	-	NA	?	-	NA	?	-	NA	?
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**-**	**NA**	**?**	**-**	**NA**	**?**	**-**	**NA**	**?**

Brief Pain Inventory (BPI)	Country (language) in which the Self-Reported Measures (SRM) was evaluated	Measurement error			Criterion validity			Hypotheses testing			Responsiveness		
		n	**Meth qual**	**Result (rating)**	**n**	**Meth qual**	**Result (rating)**	**n**	**Meth qual**	**Result (rating)**	**n**	**Meth qual**	**Result (rating)**
Valente, Ribeiro, and Jensen 2012	Portugal (European Portuguese)	**-**	**NA**	**?**	**214**	**Very Low**	Pearson's r =0.43 – 0.63 (-)	**214**	**High**	100% (3 hip) (+)	**-**	**NA**	**?**
Pooled or summary result (overall rating)		**-**	**NA**	**?**	**214**	**Very Low**	**(-)**	**214**	**High**	**+**	-	**NA**	**?**