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REVIEW ARTICLE

What do we mean by 'self-management' for chronic low back pain? A narrative review

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Abstract

Background Chronic low back pain (CLBP) is a highly prevalent musculoskeletal condition affecting 60–80% of the general population within their lifetime. Given the large numbers of people affected, self-management approaches have been introduced as a way to manage this condition with endorsement by the national institute for health and care excellence. Interventions are often termed self-management without defining either content or goals. Our study sought to determine the content, characteristics, and evidence for self-management of CLBP.

Methods This narrative review was conducted using a systematic approach to search journal articles in English that focused on CLBP self-management. MEDLINE, EMBASE, CINAHL, and PsycINFO databases were used to identify publications with terms relating to back pain and self-management from January 2016 until January 2022.

Results In total, 15 studies were found suitable for inclusion in the review. Core components of self-management strategies include exercise, education, and psychological interventions, but there was a lack of consistency with respect to content. Intervention characteristics were either under-reported or varied. Furthermore, outcome measures used to assess these self-management programmes were diverse, mainly focusing on functional disability and pain intensity.

Conclusions Inconsistencies in the content of self-management interventions, intervention characteristics, and outcome measures used for assessing self-management programmes were found across the literature. Current self-management approaches do not consider the complex biopsychosocial nature of CLBP. A consensus on the key components of self-management interventions, and how they should be evaluated, will pave the way for research to determine whether self-management can effectively manage CLBP.

Keywords Self-management · Chronic low back pain · Component · Outcome · Evidence

Background

Chronic low back pain (CLBP) is a condition characterised by long-term and persistent pain in the lumbosacral area [1]. In more than 90% of CLBP cases, there is no specific cause, and these cases are often referred to as non-specific CLBP [2]. CLBP is one of the most common musculoskeletal problems, with a lifetime prevalence of 40% in the global adult population [3]. More than two-thirds of individuals have a recurrence within 12 months after recovery [4]. In addition to the personal toll, CLBP poses an enormous economic burden on society and presents a considerable challenge for healthcare systems. Total annual healthcare costs associated with back pain were estimated to be approximately £2.8 billion for direct costs and £10.7 billion for indirect costs in the UK [5, 6]. In the past, pharmaceutical and passive interventions, such as electrotherapy, ultrasound, and traction, have been widely recommended to manage CLBP, but with only short-term effects and limited evidence supporting their use [7].

In line with other chronic diseases, CLBP management has shifted from a clinician-led management model to one in which patients play a crucial role in their care, as advocated by the 2016 National Institute for Health and Care Excellence (NICE) guideline [8]. According to the biopsychosocial model [9], CLBP is an interaction of

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physical, psychological, and social influences as opposed to a monocausal somatic disease [10]. This has resulted in multidisciplinary self-management approaches using a biopsychosocial care model as an approach for managing CLBP problems [11]. Over the past five years, there has been an increasing emphasis on the self-management of CLBP, and it is considered a promising 'treatment option' [12]. A self-management approach has been endorsed by many published national and international clinical guidelines to aid in the long-term management of back pain symptoms [13–16] and by the STarT back screening tool for low risk back pain patients [17].

Although a self-management approach is widely recommended for treating CLBP, its definition and descriptions of its content are vague and unclear [18, 19]. Terms related to the patient's active involvement in managing their condition, like self-care, self-management, self-help, and multidisciplinary management, are often used interchangeably without clear definitions and presentation of the underlying theory [20, 21]. At the same time, most give only a conceptual or general definition of self-management interventions and lack clear goals and specific contents [8, 13, 15, 16].

Therefore, it is necessary to define what self-management means and what treatments/contents it should encompass. Understanding what evidence exists to support its use as a treatment for managing CLBP is also crucial. Thus, the purpose of this narrative review was to synthesise the findings concerning the content, characteristics, and evidence regarding the effectiveness of self-management interventions for CLBP. More specifically, the review aimed to address the following questions:

(i) What are the components (content) of self-management interventions for CLBP, and what is the evidence for each component?
(ii) What are the key characteristics of self-management interventions for CLBP?
(iii) What outcome measures and metrics have been used for the evaluation of self-management programmes for CLBP?

Main text

Study design

A narrative approach was taken to synthesise the literature on CLBP subsequent to the NICE guidance published in 2016 [8]. This involves a thoughtful, in-depth, and critically reflective process, with the aim of improving the understanding of current concepts of CLBP self-management [22]. In this narrative review, an inclusive search strategy was developed, encompassing both qualitative and quantitative approaches.

Search strategy

A systematic approach was used to search literature using MEDLINE, EMBASE, CINAHL, and PsycINFO with the following keywords: chronic low back pain, low back pain, self-management, self-care, multidisciplinary, multicomponent, mobile applications, patient education, exercise, and cognitive behavioural therapy (Online Appendix A). An iterative approach to searching the literature was used, where the research team and a specialist librarian helped refine the search terms until a final strategy was decided.

An initial search was conducted on January 2021 and limited to articles published since January 2016 to capture those published since the updated NICE guidelines [8], until December 2020. The search was repeated in March 2022 to ensure that any relevant new publications were incorporated into the review.

Eligibility criteria

Criteria for inclusion in the review were: (i) report of at least one self-management approach that encouraged patients to be actively involved in the management of their condition, such as unsupervised exercise programs or patient education, (ii) evaluation of a self-management intervention, (iii) adult participants (> 18 years) with LBP of greater than or equal to 12-week duration, and (iv) English language publications since 2016. Exclusion criteria were: (i) case reports or conference abstracts, (ii) low back pain with specific pathologies, such as infection, neoplasm, fracture, inflammatory disease, radiculopathy, and sciatica, (iii) CLBP management involving passive physical modalities, such as manual therapy and physical modality, (iv) intervention was delivered by face-to-face session or occurred at healthcare or public setting without using the terms 'self-management' or 'self-care'.

Study selection

Firstly, title and abstract selection were performed by one of the reviewers (TZ) according to the inclusion and exclusion criteria. Following a discussion with the research team, the same reviewer screened full-text papers from the abstract selection with the same eligibility criteria in the second stage. Any doubts were resolved through discussion with the other two reviewers (AM and DS).

Data extraction

The theoretical rationale, delivery mode, intervention provider, location of the evaluation of the intervention, intervention schedule and intensity, theme and content of treatment and control groups were extracted independently from included articles by one reviewer (TZ). In addition, we also extracted data on which outcome measures and metrics were used to evaluate the interventions. When there were doubts, a consensus was reached within the review team.

Results

Search process

An initial search for the period January 2016 to December 2020 was conducted on January 2021 and identified 8152 potential publications. A total of 7977 articles were excluded after removal of duplicates and after a review of their title and abstracts, leaving 175 articles. The remaining studies were subsequently read and evaluated according to the inclusion criteria, and a further 163 studies were excluded. The main reasons for excluding articles: the topic was irrelevant to our subject, the intervention was not defined using the terms "self-management", and the study design was a case report, review, or study protocol. Finally, 12 articles satisfied the eligibility criteria and were considered in the review. The subsequent and updated search for the period from January 2021 to January 2022 was conducted on March 2022 to gather the most up-to-date evidence. A total of 1603 studies were found, of which three studies were included in the review after screening. Finally, 15 articles satisfied the eligibility criteria and were considered in the review [23–37]. Figure 1 shows the cumulative search results at each stage of selection and the main reasons for exclusion.

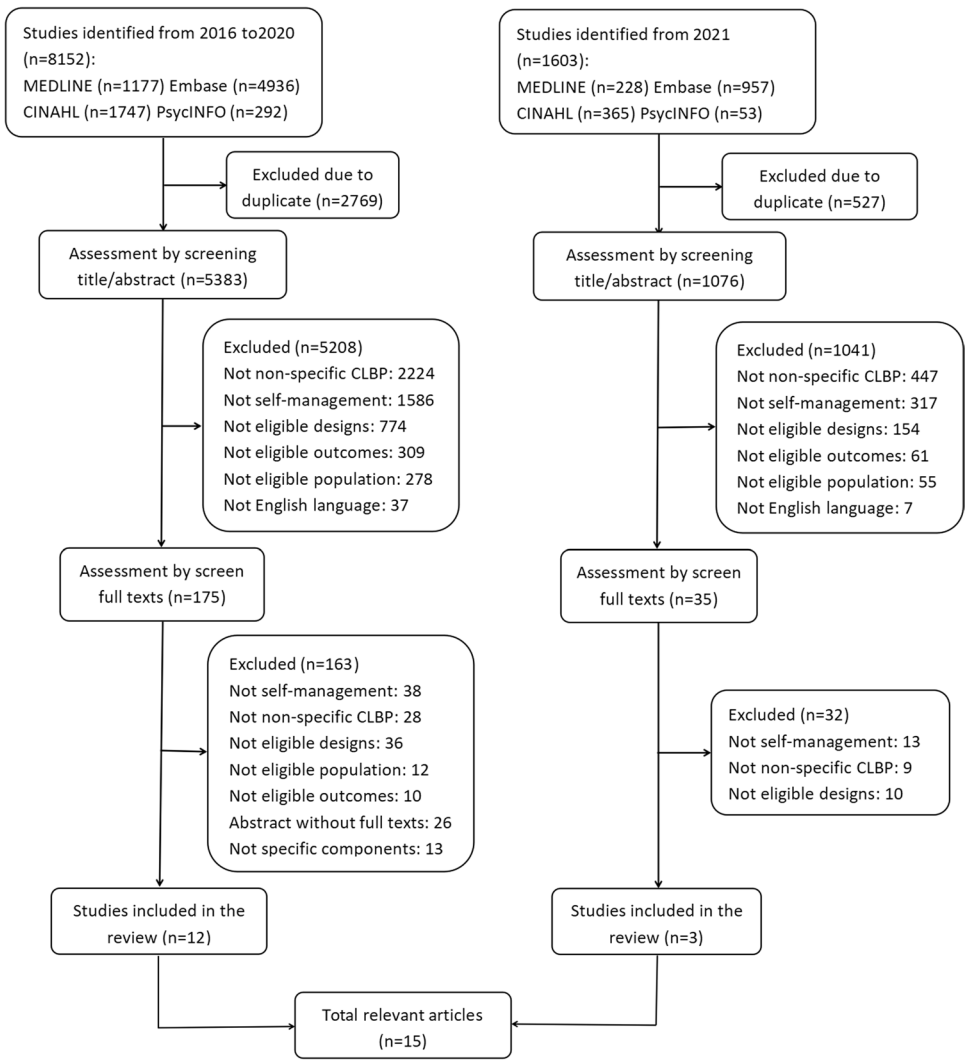

Fig. 1 Flow chart of the selection process following the PRISMA guideline

The characteristics of each selected trial are described in Online Appendix B.

Self-management intervention contents

The range of the different self-management components identified across included studies are summarised in Table 1. Although there are different self-management components, the main self-management components are broadly classified as (i) exercise, (ii) education, and (iii) psychological interventions.

Each of these components has a number of subcomponents. Exercise encompassed core stabilisation exercises ($n = 6/12$), stretching ($n = 6/12$), strengthening exercises ($n = 4/12$), aerobic exercises ($n = 4/12$), aquatic exercises ($n = 2/12$), and yoga ($n = 1/12$). Education included information on CLBP mechanisms ($n = 4/7$), ergonomics ($n = 4/7$), lifestyle change ($n = 3/7$), and medication use ($n = 2/7$). Psychological interventions consisted of CBT ($n = 1/2$) and mindfulness and meditation ($n = 1/2$).

Key characteristics of self-management interventions

Theoretical underpinning

Of the 15 included articles, four studies were theoretically driven, with two studies adopting a biopsychosocial model [23, 25], that considers multidisciplinary rehabilitation interventions, including biological, psychological, and social factors, to address the complex nature of CLBP. One study adopted the self-regulatory model of illness cognitions [24], where an individual confronts a potential illness via symptom perception and social messages. Also, one study utilised the Alignment, Core muscles, and Endogenous activation (ACE) concept [32], which consists of 3 types of exercise therapy for CLBP: Alignment-optimising postural alignment; Core muscles-strengthening deep muscles; and Endogenous activation-activating endogenous substances in the body.

Delivery mode

Eight (53%) of the 15 included studies described the modes of intervention delivery. Of these, four studies delivered self-management interventions using the internet [34–37], and two provided written information (e.g. booklet and leaflet) [26, 32]. In addition, two studies reported using a hybrid model of both face-to-face sessions and written information to deliver self-management interventions [24, 25].

Intervention provider

Only three studies reported explicit information about who developed the intervention: two of these interventions involved a multidisciplinary team [23, 24], and one intervention was provided by a physiotherapist [25].

The location of the evaluation of the intervention

Apart from 2 of the included articles, 13 studies showed explicit information about where and how the outcomes were obtained. Self-management evaluation metrics for the included studies were delivered in two settings: the clinic or a remote environment. Outcome measurements in 6 included articles were performed in the laboratory or clinic by an assessor who was either a trained and experienced physiotherapist, physician or healthcare professional [24, 25, 28, 30, 31, 33]. In contrast, 7 of the included articles assessed outcome measures remotely using questionnaires distributed via the internet, mail, or telephone [23, 26, 29, 34–37].

Intervention duration, frequency, and duration of session

Intervention duration varied greatly, with two studies lasting less than eight weeks [24, 31] and four studies lasting eight weeks or more [23, 28, 29, 32]. The intervention dose prescribed among articles ranged from the equivalent of 6 sessions to the equivalent of 24 sessions. Each session ranged in duration from 30 min to 2 h.

Outcome measures and metrics of CLBP self-management

The majority of outcomes were evaluated using measures of functional disability and pain intensity, followed by quality of life, and fear-avoidance beliefs (Fig. 2). All outcome measures can be classified under the broad categories of (i) clinical measures, (ii) health status measures, (iii) psychological measures, and (iv) physical function measures. Details associated with metrics for each outcome are summarised in Table 2.

Primary outcomes

Only 7 of the 15 studies defined their primary outcomes; functional disability was used as the primary outcome in 4/7(57%) studies [24, 34, 35, 37], and pain intensity was chosen as the primary outcome in 4/7(57%) studies [32, 34–36]. Some less common primary outcomes were noted in this review, including achieving educational objectives 1/7(14%) [23] and the condition of care-seeking 1/7(14%) [34]. The evaluation of educational objectives focuses on returning to work, resuming physical activities, or better pain management, and improved body knowledge. The number

Table 1 Self-management components in the literature (Count = number of components out of the total of 15 papers)

Main component	Count and percentage	Sub-category	Count and percentage	Description	References
Exercise	(12 out of 15; 80%)	Core stabilisation exercise	(6 out of 12; 50%)	Targeting deep muscles of the spine to maintain spinal and pelvic stability and control body movements during skeletal perturbation activities	[26, 28, 29, 31–33]
		Stretching exercise	(6 out of 12; 50%)	Improving flexibility and range of motion of the spine, lower, and upper limb muscle	[23, 26, 27, 30, 32, 37]
		Strengthening exercise	(4 out of 12; 33%)	Increasing trunk, lower, and upper limb muscle strength by making muscles work against a weight or force	[23, 27, 30, 37]
		Aerobic exercise	(4 out of 12; 33%)	Most aerobic exercises included walking. Others included stationary cycling, cycling, and jogging	[26, 28, 32, 35]
		Aquatic exercise	(2 out of 12; 17%)	Performing any activity in the water, such as deep-water walking, takes the buoyancy, hydrostatic pressure, and resistance in the water aids in muscle relaxation, improving joint motion and reducing pain	[30, 32]
		Yoga	(1 out of 12; 8%)	Including breath control, simple meditation, and the adoption of specific body postures practised for health and relaxation	[23]
Education	(7 out of 15; 47%)	CLBP mechanisms	(4 out of 7; 57%)	Helping patients 'make sense' of their pain. Basic knowledge was provided on CLBP development, symptoms, and management strategies	[23–25, 37]
		Ergonomics	(4 out of 7; 57%)	Educating patients about anatomy and the biomechanics of the spine, as well as identification and avoidance of poor movement patterns and postures that cause pain disorders	[23–25, 36]
		Lifestyle change	(3 out of 7; 43%)	Including advice to stay active, the promotion of gradual increases in physical activity, and advice regarding sleep habits	[23, 34, 35]
		Medication use	(2 out of 7; 29%)	Consisting of over-the-counter medicines (e.g. NSAIDs and paracetamol), opioids, anti-epileptic drugs, and anti-depressants	[24, 35]
Psychological interventions	(2 out of 15; 13%)	CBT	(1 out of 2; 50%)	Helping people manage problems by challenging and changing cognitive distortions and their associated behaviours to improve emotional regulation and develop personal coping strategies that target solving current problems	[24]
		Mindfulness & Meditation	(1 out of 2; 50%)	Paying more attention to the present moment with regard to thoughts and feelings without interpretation or judgment improves mental well-being	[37]

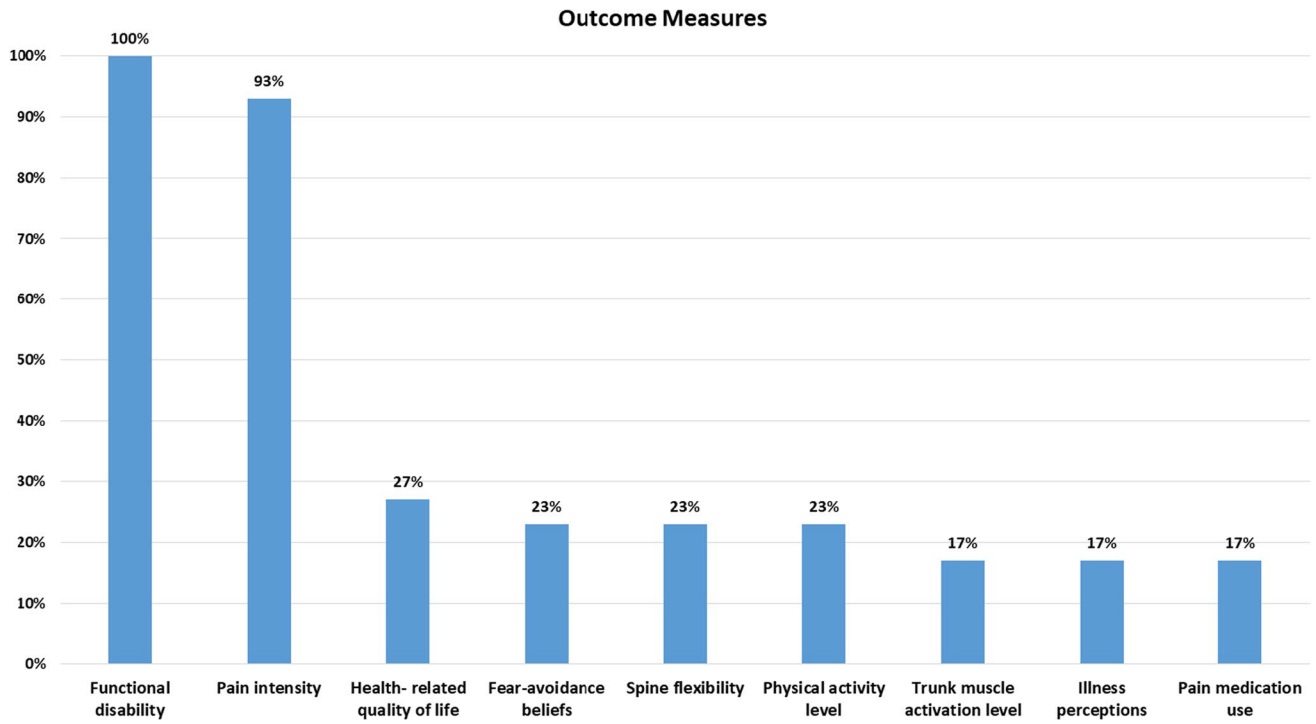

Fig. 2 Typical outcome measures used in the self-management strategies for included studies. Data are presented as percentages of the total included studies

of LBP consultations was used to assess the condition of care-seeking, included visiting a GP, a physiotherapist, a chiropractor, emergency department, surgical procedure or seek self-management (e.g. medication, heat pack).

Evidence of each component for CLBP self-management

Reviewing evidence for each component of management was beyond the scope of this review. In this section, we seek to highlight the current existing evidence level for supporting each component of care. A literature search was therefore conducted to find the most recent highest quality systematic review for each LBP self-management component. Systematic reviews published in the last five years (from 2018 to 2022) focusing on general and chronic LBP were searched. If no systematic reviews were found within the past 5 years, the search date was extended to the past 7 years. If more than one systematic review was found regarding a specific treatment component in the past 5 years, the assessing methodological quality of systematic reviews (AMSTAR) tool based on identification of critical domains [38] was used to assess the highest quality paper. The process of AMSTAR is described in Online Appendix C. The results showed that almost all self-management components reported in the management of CLBP were supported by high level of evidence, apart from the use of progressive muscle techniques. Table 3 summarises key systematic reviews and meta-analysis pertinent to the management of CLBP and the self-management components identified.

Discussion

Self-management intervention content

Exercise, education, and psychological interventions were identified as core components for the self-management of CLBP. Unfortunately, there was a lack of consistency in describing the specific contents of self-management programmes. Variation in content is possible due to differences in the definition of self-management, leading to different management strategies [18]. In addition, self-management interventions reported in the literature are frequently poorly defined. The extent of descriptions of the intervention content varied across studies, but the details provided were generally sparse: descriptions were either brief or completely lacking in the included studies. This leaves self-management open and difficult to interpret and replicate [53]. A systematic review also found that people with LBP strongly desire clear and consistent information on self-management strategies [54]; however, in the scientific literature such information is not readily available.

Table 2 Summary of outcome metrics used in self-management literature (count = number of outcome metrics out of papers that use corresponding outcomes)

Type of measurement	Outcome measures	Metric	Count and Percentage	References
Clinical measurement	Functional disability	Roland–Morris Questionnaire	(7 out of 15; 47%)	[24–26, 32–34, 37]
		Oswestry Disability Index	(5 out of 15; 33%)	[27, 28, 30, 31, 35]
		Quebec Back Pain Disability Scale	(2 out of 15; 13%)	[23, 36]
		Pain Disability Index	(1 out of 15; 6%)	[29]
	Pain intensity	Visual Analogue Scale	(8 out of 14; 57%)	[23, 27, 28, 30, 31, 33, 36, 37]
		Pain Numerical Rating Scale	(5 out of 14; 36%)	[25, 26, 32, 34, 35]
		11-point box scale	(1 out of 14; 7%)	[24]
Health status measurement	Health-related quality of life	12/36-item Short Form Health Survey	(2 out of 4; 50%)	[26, 36]
		EQ-5D-3L Questionnaire	(2 out of 4; 50%)	[32, 37]
	Pain medication use	Questions for consumption of pain medication	(2 out of 2; 100%)	[24, 25]
Psychological measurement	Fear-avoidance beliefs	Fear-Avoidance Beliefs Questionnaire	(3 out of 3; 100%)	[23, 24, 37]
	Illness perceptions	Brief Illness Perceptions Questionnaire	(2 out of 2; 100%)	[24, 37]
Physical function measurement	Spine flexibility	Fingertips to Floor Distance Test	(2 out of 3; 67%)	[30, 33]
		Schober Test	(1 out of 3; 33%)	[33]
		Digital goniometer	(1 out of 3; 33%)	[27]
	Physical activity	Physical Activity Questionnaire	(2 out of 3; 67%)	[34, 37]
		Activity tracker within the app	(1 out of 3; 33%)	[35]
	Trunk muscle activation level	Surface electromyography	(2 out of 2; 100%)	[28, 31]

Use of theoretical underpinnings

The theoretical underpinnings for using self-management interventions for CLBP were poorly reported and were rarely explicitly mentioned across the included studies. This finding is in line with a review in 2015 where only three of their 22 included studies were classified as 'theory informed' [20]. The lack of a rationale is considered a significant setback in developing effective interventions [55, 56], which may explain some of the heterogeneity in effectiveness observed. The UK Medical Research Council (MRC) advocates drawing on theory for developing and evaluating complex interventions [57]. Interventions developed using a theoretical framework contribute to understanding how and why interventions work, allowing researchers to focus on understanding the mechanisms of change and enabling theories to be empirically tested and ultimately improved [55, 58].

CLBP is a complex multifactor pathology that causes physical pain and impaired functioning and impacts psychological health and social or work-related behaviours [59]. Complex multidisciplinary treatments underpinned by a biopsychosocial framework are generally accepted for the self-management of CLBP [60] and have been strongly recommended by World Health Organization (WHO) for guiding CLBP management [9, 61]. In terms of intervention content, however, there are few studies identified in this review of self-management interventions that were developed based on a complex intervention framework using a bio-psycho-social model. Most of the self-management interventions in this review were based on a traditional biomedical model with the intervention focused on exercise only. Some recent reviews also found that a mechanistic paradigm (e.g. muscle strength, flexibility, stabilisation and motor control) was the most commonly proposed treatment target for interventions in people with CLBP [62, 63]. It appears that people tend to develop self-management strategies including individual components of care that they can deliver remotely rather than a contextual approach which considers how different components of

Table 3 Evidence on individual component from systematic reviews and meta-analyses

Intervention	Author, Year	LoE	Sample	Main outcomes and results	Recommended for clinical practice
Core stability exercise	Smrcina, 2022 [39]	1a	LBP patients ($n = 275$)	Pain intensity: Significant ↓ Functional disability: Significant ↓	Moderate-quality evidence supports the efficacy of core stability exercise in people with non-specific LBP
Slump stretching	Pourahmadi, 2019 [40] Meta-analysis	1a	LBP patients ($n = 515$)	Pain intensity: Significant ↓ Functional disability: Significant ↓Straight leg raise and active knee extension ROM: Significant↑	There is very low to moderate quality of evidence that slump stretching may have positive effects on pain in people with LBP
Posterior chain resistance training	Tataryn, 2021 [41] Meta-analysis	1a	CLBP patients ($n = 408$)	Pain intensity: Significant ↓ Functional disability: Significant ↓Muscle strength: Significant↑	There are overall "strong" levels of evidence for significant improvements in pain, level of disability and strength with posterior chain resistance training
Walking, running, cycling, or swimming	Pocovi, 2022 [42] Meta-analysis	1a	LBP patients ($n = 2362$)	Pain intensity: Significant ↓ compared to minimal/no intervention at the short term Functional disability: Significant ↓ compared to minimal/no intervention at the short term	There is low to high certainty evidence that exercises were inferior to alternate treatments, but slightly superior to minimal/no intervention, for treating low back pain
Yoga	Anheyer, 2022 [43] Meta-analysis	1a	LBP patients ($n = 2702$)	Pain intensity: Significant ↓ Pain-related disability: Significant ↓Mental health: Significant↑at short term Physical functioning: Significant ↑	Yoga revealed robust short-term and long-term effects for pain, disability, and physical function, when compared with nonexercise controls, and no significantly different effects, when compared with exercise controls
Hydrotherapy	Shi, 2018 [44] Meta-analysis	1a	LBP patients ($n = 331$)	Pain intensity: Significant ↓ Quality of life: Significant ↓ General mental health: →	Aquatic exercise could statistically significantly reduce pain and increase physical function in patients with LBP
Neurophysiological pain education	Tegner, 2018 [45] Meta-analysis	1a	LBP patients ($n = 300$)	Pain intensity: Significant ↓ Functional disability: Significant ↓Behavioral Attitudes: →	There was moderate evidence supporting the conclusion that neurophysiological pain education has a small to moderate effect on pain for CLBP patients
Education on ergonomics	Ainpradub, 2016 [46] Meta-analysis	1a	LBP patients ($n = 10{,}610$)	Prevention: No long-term effect on the prevalence of LBP Treatment: No intermediate- or long-term effect on pain intensity level	Education programs were not effective in preventing and treating low back pain
Lifestyle physical activity	Alzahrani, 2019 [47] Meta-analysis	1a	LBP patients ($n = 422$)	Pain intensity: → at short term Functional disability: → at short term, Significant ↓ at intermediate and long term Physical activity related outcomes: Significant ↑	Moderate quality evidence for reducing the disability in people with chronic LBP at intermediate- and long-term follow-up

Table 3 (continued)

Intervention	Author, Year	LoE	Sample	Main outcomes and results	Recommended for clinical practice
Pharmaceutical treatment	Migliorini, 2021 [48] Meta-analysis	1a	CLBP patients ($n = 9007$)	Pain intensity: Significant ↓ Functional disability: Significant↓	Pharmaceutical treatment (baclofen, duloxetine, NSAIDs, and opiates) improved pain and disability levels in patients with LBP
Cognitive behavioral therapy	Yang, 2022 [49] Meta-analysis	1a	CLBP patients ($n = 3344$)	Pain intensity: Significant ↓ Functional disability: Significant↓Fear avoidance: Significant ↓ Self-efficacy: Significant↑	Low- to moderate-quality evidence supports that CBT is beneficial in patients with CLBP for improving pain, disability, fear avoidance, and self-efficacy in CLBP patients
Progressive muscle relaxation	N/A				
Mindfulness-based stress reduction	Anheyer, 2017 [50] Meta-analysis	1a	LBP patients ($n = 864$)	Pain intensity: Significant ↓ at short term Functional disability: Significant ↓ at short term	Mindfulness-based stress reduction may be associated with short-term effects on pain intensity and physical functioning
Meditation	Soares, 2022 [51] Meta-analysis	1a	LBP patients ($n = 1234$)	Pain intensity: Significant ↓ compared with usual care at long term Functional disability: Significant ↓ compared with minimal intervention at short term	Moderate-certainty evidence suggests that meditation is slightly better than minimal intervention in the short-term for disability. Low-certainty of evidence suggests that meditation is slightly better than usual care for pain in the long-term

Level of Evidence (LoE): 1a: Systematic reviews of randomised controlled trials (RCTs); 1b: Individual RCTs with narrow confidence interval; 2a: Systematic reviews of cohort studies; 2b: Individual cohort studies and low-quality RCTs; 3a: Systematic reviews of case–control studies; 3b: Case-controlled studies; 4: Case series and poor-quality cohort and case–control studies; 5: Expert opinion [52]. LBP = Low back pain; CLBP = Chronic low back pain; ROM = Range of motion; N/A = No systematic review or Meta-analyse was found

care interact to enable a comprehensive care package for complex problems such as CLBP.

Self-management characteristics

In terms of other aspects of the self-management intervention, intervention characteristics were either under-reported or varied. Under-reporting and inconsistency in the intervention provider, mechanism of delivery, intervention schedule and intensity were evident in most studies of self-management for CLBP. Inadequate and inconsistent intervention descriptions are a common problem, particularly in complex interventions that include multiple components and techniques [53, 64]. However, researchers cannot replicate or build on research findings without a clear and consistent description of the intervention, and it confuses clinicians, patients, and other decision-makers on how to implement the intervention specifically [65]. Furthermore, under-reporting and wide variations in the content of interventions will impact outcomes.

Mode of delivery also varied, some delivered self-management interventions merely via the internet and written information, and some used a hybrid mode to deliver self-management interventions including face-to-face workshops and written materials. The face-to-face workshop approach provides support and guidance from healthcare professionals to ensure participants understand self-management materials and allows patient doubts and questions to be answered. With hybrid mode attention has to be given as it is not a thorough autonomic self-care model, the communication between clinicians and patients usually gives participants additional advice and support. The clinician–patient interaction thus will have potentially implications on the effectiveness of care [66].

Furthermore, despite some articles calling their intervention "self-management", some of aspects of these interventions were carried out in a healthcare setting, e.g. an assessor performing outcome measurements in the laboratory or clinic. Physical interactions with the clinician and assessor even if only at assessment point may provide a level of reassurance, potentially impacting on outcomes [67] and subsequent translation of effectiveness.

Outcome measures

The outcome measures used in the literature to assess CLBP self-management programmes were varied, covering a wide range of domains from clinical, health status, and psychological measurements, to measures of physical function. Most studies evaluated the programmes through improvements in health status, psychological status, and physical function. However, behaviour changes specific to the aims of the intervention were not assessed, nor were metrics of engagement, such as participation or dropout rates. Self-management interventions aim to help people to manage their symptoms by learning and adopting health behaviours [18]. It is therefore important to assess clinical and health-status outcomes, which can reflect the effectiveness of intervention content, and behaviour outcomes, which can assess self-management adherence [68].

Most studies focused on measuring changes in clinical improvements. Regardless of what self-management interventions consist of in the literature, functional disability and pain intensity have been the most common outcome measures used to date. However, these outcomes may not have been specifically relevant to the intervention and may not reflect their effectiveness. For example, when the self-management strategy consists of educational or psychological interventions, the outcome measures often focus on pain and disability rather than other immediate process outcomes, such as knowledge, attitudes, beliefs, anxiety, and depression. Outcome measures highly associated with the clinical event data (content and goals of the intervention) can better evaluate the effectiveness of interventions [69]. Additionally, included studies did not generally use outcome metrics relevant to the biopsychosocial model. There is strong evidence that a multidimensional assessment may be warranted as psychosocial factors were important determinants of response to therapy in CLBP [69]. Thus, the current studies fail to reveal whether an intervention works in the sense of achieving the desired outcome.

Evidence of effects of CLBP self-management intervention

We found a range of different components across studies used to construct self-management interventions. Although the evidence supporting individual interventions is varied, most components of CLBP self-management are evidence-based in isolation. Therefore, no evidence was found for them as a complex multidisciplinary treatment in the form of a self-management program. Moreover, there was a lack of consistency in the description of intervention content and characteristics, such as theoretical rationale, delivery and format, and intervention schedule and intensity. The outcomes and metrics for evaluating self-management programmes also differ across included studies. This suggests that there is no agreement in the existing literature on the definition and goal of CLBP self-management, making comparisons of different interventions difficult.

Implication

Consensus regarding recommendations, characteristics of the intervention, and measurement of outcomes in self-management programmes cannot be reached from the available literature. This may have arisen from difficulty recognising what alterations and achievements professional healthcare practitioners want patients to make in self-management. It also suggests confusion in the profession about what is meant by self-management, creating a barrier to effective implementation and use of self-management strategies in the future [70]. Another reason for the heterogeneity is that a self-management approach as reported in the current literature does not form a comprehensive package of care, but rather a series of individual components of care. In addition, the current packages do not consider frameworks for developing and evaluating complex interventions as described by the MRC [71]. Future research needs to consider self-management as a complex multicomponent intervention using the MRC framework and applying the biopsychosocial model for CLBP.

Conclusion

The literature findings revealed substantial heterogeneity in self-management interventions with respect to intervention contents, theoretical underpinnings, other characteristics, and measurement of outcomes. This makes it difficult to produce adequate evidence to prove the effect of self-management interventions of CLBP for widespread implementation. Despite its routine prescription, there is no accepted concept and goal for CLBP self-management interventions across the literature. Future research should consider developing and evaluating self-management strategies for CLBP as complex interventions using the MRC framework.

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Declarations

Conflict of interest The authors declare that there is no conflict of interest.

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