APA CLINICAL PRACTICE GUIDELINE for Psychological and Other Nonpharmacological Treatment of Chronic Musculoskeletal Pain in Adults

GUIDELINE DEVELOPMENT PANEL FOR THE TREATMENT OF CHRONIC MUSCULOSKELETAL PAIN IN ADULTS

APPROVED BY APA COUNCIL OF REPRESENTATIVES
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AMERICAN PSYCHOLOGICAL ASSOCIATION

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Please refer to p. 41 of this guideline for a statement on conflicts of interest as well as p. 44 for acknowledgements.

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Abstract

The American Psychological Association developed this clinical practice guideline to provide recommendations for the nonpharmacological treatment of chronic musculoskeletal pain in adults. Three systematic reviews and meta-analyses, along with other literature and observations from practitioners and patients, served as the basis for the guideline. The guideline development panel consisted of health professionals from psychology, occupational medicine, nursing, social work, physical therapy, as well as community members who self-identified as having chronic musculoskeletal pain. The panel examined the efficacy of noninvasive, nonpharmacological treatments and of complementary and integrative medicine treatments. It also examined comparative effectiveness among noninvasive, nonpharmacological treatments (by themselves and in combination with other treatments or select nonopioid, pharmacologic approaches) and comparative effectiveness of noninvasive, nonpharmacological treatments in relation to complementary and integrative medicine treatments or select nonopioid, pharmacologic treatments. First-line and second-line recommendations for the treatment of chronic musculoskeletal pain as well as areas where there was insufficient evidence for the panel to recommend for or against a specific treatment are noted in this guideline. The guideline also discusses the importance of cultural variations in assessing and treating chronic musculoskeletal pain, addresses strategies for implementing the findings into practice, and reviews gaps identified in the literature where future research is warranted.

Keywords: Chronic musculoskeletal pain, adults, clinical practice guideline, psychological, nonpharmacological

Intended Use of Guidelines

This guideline is aspirational in nature and not intended to create a requirement for practice. It is not meant to restrict scope of practice in licensing laws for psychologists or for other independently licensed professionals, nor to limit coverage for reimbursement by third- party payors. The guideline is also not intended to be used within a legal or judicial context to imply that psychologists or other independently licensed professionals are required to comply with any of its recommendations.

The term "guidelines" as used in this document refers to statements that suggest or recommend specific professional behavior for psychologists and may also be useful for other clinicians, depending on the facts and circumstances presented and on the professional judgment of the psychologist. Guidelines are not intended to be mandatory or exhaustive and may not be applicable to every professional and clinical situation. They are not definitive, and they are not intended to take precedence over the judgment of the clinician. The guidelines differ from standards in that the latter are mandatory and may be accompanied by an enforcement mechanism. Thus, guidelines are aspirational and intended to facilitate the continued systematic development of the profession and professional practice by psychologists. Please refer to the APA's (2015) *Professional Practice Guidelines: Guidance for Developers and Users* for a discussion of the several types of guidelines produced by APA. Clinical practice guidelines are an important tool for determining intervention options, but not the only resource.

The panel encourages clinicians to consider the report from the APA Presidential Task Force on Evidence-Based Practice (2006), *Evidence-Based Practice in Psychology*, as well as APA's (2021) *Professional Practice Guidelines on Evidence-Based Psychological Practice in Health Care*, both of which emphasize the integration of best available research; patient characteristics, culture, and preferences; and clinical expertise for making treatment decisions.

In reviewing the recommendations, the panel reminds the reader that a lack of evidence about a treatment does not imply that a particular treatment is not efficacious. Multiple reasons may account for the findings reported in this document, including (but not limited to) gaps in the literature related to particular treatments or limitations in the specific literature reviewed by the panel based on methodological constraints, all of which will be discussed later in the guideline. Ultimately, when clinicians are developing treatment plans, the panel encourages them to do so in a shared decision-making process with the patient in which they discuss information about relevant options and help inform the process in an effort to protect patients against the potential harm of not receiving or understanding treatment options (American Medical Association, 2016; American Psychological Association, 2017; Schmerling, 2020).

Executive Summary

Scope

This guideline is intended to provide recommendations for the nonpharmacological treatment of chronic musculoskeletal pain in adults, based on systematic reviews of scientific evidence. After the panel examined a list of systematic reviews available at the beginning of its deliberations, three current systematic reviews and meta-analyses (Geraghty et al., 2021; Skelly et al., 2020; Williams et al., 2020) that were determined to be most relevant to the panel's scope served as the basis for this guideline.

This guideline addresses the efficacy of nonpharmacologic (i.e., psychological therapies, exercise,[1] physical modalities,[2] manual therapies) and complementary and integrative treatments (e.g., acupuncture, mindfulness practices, mind-body practices, multidisciplinary rehabilitation), as well as the comparative effectiveness of, nonopioid pharmacologic approaches (i.e., NSAIDs and acetaminophen),[3] and combined approaches. In addition, the guideline addresses harms and burdens of treatment, patient[4] values and preferences, and applicability.

The panel accepted the International Association for the Study of Pain's definition of chronic pain as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage" (Raja et al., 2020, p. 2).

The reviews underlying this guideline do not specifically address acute and subacute pain, diagnostic approaches, cancer pain, and headache and facial pain.[5] The guideline also does not address the management of chronic pain in children and adolescents. These topics are important and discussed in other guidelines (e.g., Scottish Government, 2018; World Health Organization, 2020) and reviews (e.g., Friedrichsdorf et al., 2016; Hauer, 2024).

Background

Chronic pain is among the most prevalent, disabling, and costly conditions, exceeding both the prevalence and cost for cancer, diabetes, and heart disease combined in the United States (Institute of Medicine, 2011c; Mills et al., 2019; Nahin et al., 2023; Yong et al., 2022). In recent decades chronic pain has been even more pointed given the opioid crisis. Specific to the current guideline, chronic musculoskeletal pain is the most common among chronic pain conditions and one of the most frequent reasons individuals seek health care (Institute of Medicine, 2011c), not to mention a leading global cause of disability (Global Burden of Disease Study 2013 Collaborators, 2015).

Despite its pervasive presence in society (Zelaya et al., 2019), pain remains a uniquely individual experience. Gender, age, ethnicity, race, and education level are among the many psychosocial factors that impact both how individuals experience pain and how they respond to treatment (Meints et al., 2016; Molton & Terrill, 2014; Robinson et al., 2001; Tait & Chibnall, 2014). Moreover, racialized disparities impact access to pain care in spite of national efforts to address this inequity (Mathur et al., 2022). The aforementioned collectively highlights the importance of taking an individualized, person-centered approach to treatment. Such a perspective takes into consideration how systemic factors interact with an individual's personal value system and background characteristics to shape the context in which pain care occurs and creates a pathway to maximize outcomes.

Given the public health significance of chronic musculoskeletal pain, it is imperative to have guidance on evidence-based options for individuals with this debilitating condition. The current guideline thus strives to provide this comprehensive, evidence-based information, within the scope of the systematic reviews used, to providers, patients and their families, and the broader public.

The Process and Method section details the panel's decision making throughout guideline development. It is

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1 The AHRQ review by Skelly and colleagues (2020) included a broad category for "exercise" and the panel recognizes that there are multiple definitions of exercise that include physical, psychological, and mind–body practices. Please refer to Appendix A of the guideline for the list of key terms and definitions.

2 Physical modalities are types of electrical, thermal, or mechanical energy that can cause physiological changes and that are commonly used in physical therapy treatment.

3 While the primary focus of the guideline is on nonpharmacological approaches, the studies that were part of the systematic review that served as the primary evidence base (Skelly et al., 2020) included nonopioid, pharmacologic approaches as one of its comparisons (i.e., acetaminophen, ibuprofen, pregabalin, thiocolchicoside, trilisate, zaltoprofen)

4 To be consistent with discussions of evidence-based practice in other areas of health care, we use the term "patient" to refer to the adult, older adult, couple, family, group, organization, community, or other populations receiving psychological services. However, we recognize that in many situations there are important and valid reasons for using such terms as client, consumer, or person in place of patient to describe the recipients of services.

5 While the panel initially thought of including headache/facial pain within the guideline, it later decided to exclude this as it may involve different modalities that would be outside the scope of the guideline.

important to note that the phrase "insufficient evidence" indicates that the panel did not have enough data to provide definitive recommendations. This lack of data can be due to a situation where (a) no relevant studies existed within the time frame of this review, (b) a very small number of relevant studies existed, (c) multiple relevant studies existed but only provided equivocal findings, or (d) the studies that were available included samples of treated groups that were of inadequate size. In addition, the lack of relevant studies can exist even if multiple studies compared certain interventions but did not provide robust (e.g., size and consistent direction of effect, sample size, etc.) findings, and no studies were conducted that included comparisons between various interventions.

Process and Method

APA develops its clinical practice guidelines in accordance with best practices that the former Institute of Medicine (now National Academy of Medicine; IOM, 2011a) set forth. Undertaking the creation of a guideline requires several key processes. APA's Advisory Steering Committee issued a call for nominations (including self-nominations) for individuals to serve as panel members from a variety of backgrounds (patient, psychology, social work, nursing, occupational medicine, physical therapy) with content knowledge, clinical experience, or methodological expertise. Conflicts of interest (financial and nonfinancial) were considered and managed both during panel member selection and throughout the guideline development process. The panel used the Population, Interventions, Comparators, Outcome, Timing, and Settings (PICOTS) framework (a systematic approach to scoping a comprehensive literature review of a clinical subject matter; Samson & Schoelles, 2012) to guide the early stages of the scoping process.

The panel identified the following outcomes as the most critical for making decisions about treatment:

- Physical functioning and performance (e.g., activities of daily living, disability, impairment, pain-related interferences, changes in strength or stamina, range of motion) and
- Mental health and emotional functioning (e.g., anxiety, depression, anger, pain coping [e.g., fear avoidance, pain catastrophizing, acceptance of pain]).

The panel further decided that the following additional outcomes were important:

- Health-related quality of life (e.g., impacts on social activities, usual role, vitality, general health, sleep), pain intensity;[6]
- Patient self-efficacy;
- Patient global impression of change;
- Employment status / disability benefits; and
- Adverse events.

The panel developed the guideline in a series of phases, based on three recent systematic reviews and meta-analyses. The panel began the process with reviewing the systematic review published by the Agency for Healthcare Research and Quality (AHRQ; Skelly et al., 2020), *Noninvasive Nonpharmacological Treatment for Chronic Pain: A Systematic Review Update*, as it aligned closely with the panel's PICOTS framework. The panel supplemented the AHRQ review with two more systematic reviews to fill in the gaps that the primary systematic review did not address. One review addressed self-management interventions for chronic widespread pain[7] (Geraghty et al., 2021) and another one, published by Cochrane, addressed psychological interventions for chronic pain, excluding headache in adults (Williams et al., 2020). The panel also considered using two additional reviews: one on return to work (Wainwright et al., 2019) and one that examined whether opioid use was reduced through integrative medicine for the treatment of chronic pain (Hassan et al., 2020). However, after a closer examination of these reviews and after processing feedback received from the 30-day public comment period in late 2021, a decision was made to exclude both. The panel found that while the review by Hassan and colleagues (2020) was initially consistent with its PICOTS framework, it did not contain efficacy data that could be used to develop treatment recommendations. The panel excluded Wainwright and colleagues' (2019) systematic review due to the scope being narrower than what the panel was seeking. The panel subsequently considered including a recent network meta-analysis that examined psychological interventions for treating chronic, nonspecific low back pain (LBP) (Ho et al., 2022), but after further review it had concerns about methodologies within some of the individual studies included in the meta-analysis that precluded incorporating the conclusions of the authors.

The panel used systematic reviews/meta-analyses that were current within the past 5 years (from the time the process was started) and that met IOM (2011b) or A Measurement Tool to Assess Systematic Reviews-Second Version (AMSTAR-2) quality standards (Shea et al., 2017). While this is consistent with rigorous guideline development,

6 The panel acknowledges that although pain reduction was an important outcome to consider, the treatments included in the guideline were not designed to be "curative" nor were they designed to eliminate pain, rather they were designed as rehabilitative.

7 Mansfield and colleagues (2016) define "chronic widespread pain" as characterized by long-lasting pain in multiple body regions and is associated with other physical symptoms such as fatigue, concentration problems, and psychological distress.

the panel noted this approach can be limiting in that studies exploring the efficacy of psychotherapy are not conducted equally across modalities and are not regularly updated every 5 years due, in part, to psychotherapy research funding.

The panel considered four factors as it drafted recommendations based on IOM standards (2011a): 1) overall strength of the evidence, 2) the balance of benefits vs. harms/burdens, 3) patient values and preferences, and 4) applicability. Based on the combination of these variables, the panel made a recommendation or conditional recommendation for or against each treatment or concluded that there was insufficient evidence to be able to make a recommendation either for or against an intervention. The panel used a tool called a "Grid" to document its decision-making process for each recommendation statement, which can be found in the supplemental materials (linked separately).

Discussion

Chronic pain is a prevalent and debilitating condition that is one of the leading causes of seeking health care (Institute of Medicine, 2011c; Mills et al., 2019; Nahin et al., 2023; Yong et al., 2022). Given the public health significance, the APA panel has developed a clinical practice guideline providing evidence-based information to providers, patients and their families, and the broader public.

Although some other guidelines on chronic pain have been published, they differ from the current guideline in several ways. The current guideline focuses on nonpharmacological treatments for chronic musculoskeletal pain in a broad population; is organized into first- and second-line treatments in the short, intermediate, and long terms; is recent (i.e., based on reviews published within the last 5 years); and follows the IOM (2011a) standards for guideline development.

The panel also noted various considerations when implementing treatment. Examples of these include:

- Considerations for what patients need to know as part of informed consent,
- The role of provider and patient factors in treatment for chronic musculoskeletal pain,
- Barriers to treatment,
- Treatment engagement,
- Professional competence,
- Monitoring the response to treatment, and
- Cultural humility and diversity competence.

The panel also noted areas in which more research is needed on p. 70. These areas include protocol specification such as improving definitions, details, and reporting; methodology recommendations such as integration of results, increased sample size, and length of follow-up; and increasing research with diverse populations (e.g., race, ethnicity, socioeconomic status, disability, sexual orientation, gender identity). Additional areas included more research on patient preference and increased evidence reporting, such as reporting adverse events. Lastly, additional information is needed regarding the numbers of potential participants recruited for studies, the number randomized, attrition and dropout rates, numbers available at completion of treatment and follow-ups, as well as the reasons why any were not included (e.g., Consolidated Standards of Reporting Trials [CONSORT] charts).

Treatment Recommendations

In reviewing the recommendations from the panel, the reader will want to be familiar with the definition of several terms as follows:

- **Treatment as usual (TAU)** refers to the care that is customarily provided in a particular situation. The panel notes the challenge of a consistent definition of TAU given that the exact definition can vary by study.
- **No treatment** means that no active treatment was provided (i.e., waitlist).
- **Efficacy** is defined as the impact of an intervention compared to an inactive control.
- **Comparative effectiveness** is defined as comparing at least two different active treatments to each other to assess for the benefits of one (or combination) versus the other (or combination).
- **Attention control** refers to an inactive treatment that does include attention from a provider usually comparable to the attention provided with the active treatment(s).

The recommendations below are organized into the following tiers:

- **First-line** recommendations are the strongest and worded as **recommend (Strength/Direction: Strong For)** or **recommend against (Strength/Direction: Strong Against**),
- **Second-line** recommendations are less strong and worded as **suggests (Strength/Direction: Conditional For)** or **suggests against (Strength/Direction: Conditional Against)**.
- When there is **insufficient evidence** to be able to make recommendations for or against interventions, these interventions are organized into the **other treatments reviewed** tier to inform guideline users about the available evidence at the time of the publication of the underlying systematic reviews.

First-Line Recommendations

Recommendation Statement (Strength/Direction)	Rationale
For patients with **chronic musculoskeletal pain**, the panel **recommends** offering[8] patients the following interventions **(Strength/Direction: Strong For)**: ▪ **Multicomponent self-management interventions** over no treatment or usual care. ▪ **Cognitive Behavioral Therapy (CBT)** over treatment as usual or another active intervention.	Based on the literature reviewed that met the AMSTAR-2 requirements, the panel recommends offering patients with chronic musculoskeletal pain multicomponent self-management interventions as the overall balance of benefits vs. harms/burdens strongly favors multicomponent self-management interventions depending on goals of treatment (e.g., functional gains vs. reductions in pain). However, it is important to note that the balance could be lower depending on the particular components of self-management included. Based on the literature reviewed that met the AMSTAR-2 requirements, the panel recommends offering patients with chronic musculoskeletal pain CBT as the balance of benefits and harms/burdens slightly favors CBT.
For patients with **chronic LBP**, the panel **recommends** offering patients the following interventions over usual care / attention control **(Strength/Direction: Strong For)**: ▪ For **short-term[9] LBP management**, the panel **recommends** offering patients **exercise**. ▪ For **short-, intermediate-, and long-term LBP management**, the panel **recommends** offering patients **psychological therapy.[10]**	Based on the literature reviewed that met the IOM standards or AMSTAR-2 requirements, for short-term LBP management, the panel recommends offering patients exercise as there is low risk of serious harm and the balance of benefits to harms/burdens moderately favors exercise. Based on the literature reviewed that met the IOM standards or AMSTAR-2 requirements, for short-, intermediate-, and long-term LBP management, the panel recommends offering patients psychological therapy (CBT, Progressive Muscle Relaxation, Operant Therapy) as the overall balance of benefits vs. harms/burdens of psychological therapy is moderate.
For patients with **osteoarthritis (OA) knee pain**, the panel **recommends** offering patients **exercise** over usual care, attention control, or no intervention **(Strength/Direction: Strong For)**	Based on the literature reviewed that met the IOM standards, the panel recommends offering patients with OA knee pain exercise. While the panel noted initial discomfort at the start of exercise as a small burden, rating the balance of benefits and harms/burdens as "slightly" favoring exercise over usual care, overall avoiding exercise can worsen pain over time. The panel further recommends that an initial exercise program be created by a professional and be tailored to the patient's specific needs.

8 Throughout the recommendation statements, the panel uses the term "offering" to support patient autonomy.

9 The duration between postintervention and follow-up were categorized as follows: short-term (1 to <6 months), intermediate-term (≥6 to <12 months) and long-term (≥ 12 months).

10 The following therapies fell into the broad umbrella of "psychological therapy" within the systematic review that was used as the underlying evidence for this recommendation statement: cognitive behavioral therapy, respondent therapy [progressive muscle relaxation], and operant therapy (Skelly et al., 2020).

Second-Line Recommendations

Recommendation Statement (Strength/Direction)	Rationale
For patients with **chronic LBP**, the panel **suggests** offering patients the following interventions over usual care, attention control, or another intervention (**Strength/Direction: Conditional For**). • Spinal manipulation • Mindfulness-based stress reduction (MBSR) • Exercise over yoga, based on slight risk of harms of yoga. However, if the patient prefers yoga, the panel suggests offering yoga as there is essentially no difference in outcomes and only quite low risk associated with yoga. In contrast to yoga, exercise is usually supervised by the physical therapist or exercise physiologist who will have expertise and training in this domain • Acupuncture for **short-term pain management** • Multidisciplinary/interdisciplinary rehabilitation over exercise for **short- and intermediate-term pain management**	Based on the literature reviewed that met the IOM standards, the panel suggests offering patients with chronic LBP spinal manipulation and MBSR, ensuring that the clinician attends to patients' values and preferences when suggesting these modalities. Based on the literature reviewed that met the IOM standards, the panel suggests offering patients with chronic LBP exercise over yoga based on slight risk of harms in yoga and the low strength of evidence. However, the panel suggests first considering the patients' values and preferences and offering yoga if the patient prefers that over exercise. Based on the literature reviewed that met the IOM standards, the panel suggests offering patients acupuncture for short-term LBP relief as the balance of benefits and harms/burdens slightly favors acupuncture, although this was from one study (Thomas et al., 2006) that had low strength of evidence. Based on the literature reviewed that met the IOM standards, the panel suggests offering patients multidisciplinary rehabilitation over exercise for short- and intermediate-term LBP relief, based on the small benefit shown in multidisciplinary/interdisciplinary rehabilitation.[11]
For patients with **chronic neck pain**, the panel **suggests** offering patients **acupuncture** over sham, placebo, or usual care for **short- and intermediate-term** pain relief **(Strength/Direction: Conditional For)**.	Based on the literature reviewed that met the IOM standards, the panel suggests offering patients acupuncture for short- and intermediate-term chronic neck pain relief, as the balance of benefits and harms/burdens slightly favors acupuncture, though the strength of evidence was low.
For patients with **OA hip pain**, the panel **suggests** offering patients **exercise** over usual care **(Strength/Direction: Conditional For)**.	Based on the literature reviewed that met the IOM standards, the panel suggests offering patients exercise for OA hip pain, based on the small benefit of exercise. However, the overall strength of evidence was low.

11 The review that served as the primary evidence base for the recommendation statement defined multidisciplinary/interdisciplinary rehabilitation as "a coordinated program with biopsychosocial treatment components (e.g., exercise therapy and CBT) provided by professionals from at least two different specialties. Functional restoration training is included as part of multidisciplinary/interdisciplinary rehabilitation" (Skelly et al., 2020, p. 10). The panel acknowledges that not all studies may meet the full definition of multidisciplinary rehabilitation, and that "interdisciplinary" and "multidisciplinary" pain management are often used interchangeably (Gatchel et al., 2014; Schatman, 2012).

Other Treatments Reviewed

Other Treatments Reviewed (Insufficient Evidence)	Rationale
For patients with **chronic musculoskeletal pain**, there is **insufficient evidence** for the panel to recommend one intervention over the other intervention or vice versa for the following interventions. • Self-management intervention vs. active intervention. • Behavioral therapy vs. active control or vs. treatment as usual (TAU) • Acceptance and commitment therapy (ACT) vs. active control or vs. (TAU). Though there were two studies that showed a large benefit in patients who received ACT over TAU.	Based on the literature reviewed that met AMSTAR-2 requirements, there was insufficient evidence for the panel to be able to recommend for or against the listed interventions. For self-management intervention, the panel did not find any evidence that the self-management interventions within the review differed significantly from other components that are part of self-management. While two studies showed a large benefit on disability at follow-up in patients who received ACT over TAU (Luciano et al., 2014; McCracken et al., 2013), the overall evidence was insufficient for the panel to recommend for or against the intervention. The panel recommends that decisions be based on shared decision making with the patient and consideration of available resources.
For patients with **chronic LBP**, there is **insufficient evidence** for the panel to recommend for or against one intervention over the other intervention or vice versa for the following interventions. The panel recommends that decisions be based on shared decision making with the patient and consideration of available resources. • Psychological therapy vs. exercise • Low-level laser therapy vs. exercise therapy • Massage vs. exercise for **short- and long-term** pain management. • Qi Gong vs. exercise therapy • Spinal manipulation vs. exercise • Multidisciplinary/interdisciplinary rehabilitation vs. usual care or vs. exercise for **long-term** LBP relief.	Based on the literature reviewed that met the IOM standards, there was insufficient evidence for the panel to be able to recommend for or against the listed interventions or treatment comparisons. The panel recommends that decisions be based on shared decision making with the patient and consideration of available resources.
For patients with **chronic neck pain**, there is **insufficient evidence** for the panel to recommend one intervention over the other intervention or vice versa for the following interventions. • Exercise vs. attention control, no treatment, or waitlist or vs. NSAIDs and muscle relaxants • Relaxation training vs. no intervention or vs. exercise • Traction vs. attention control • Massage vs. exercise or vs. attention control or waitlist control • Alexander Technique, plus usual care vs. usual care alone • Basic body awareness therapy vs. exercise • Acupuncture vs. sham, placebo, or usual care for **long-term** neck pain management • Acupuncture vs. pharmacological care	Based on the literature reviewed that met the IOM standards, there was insufficient evidence for the panel to be able to recommend for or against the listed interventions or treatment comparisons. The panel recommends that decisions be based on shared decision making with the patient and consideration of available resources.

Other Treatments Reviewed (Insufficient Evidence)	Rationale
For patients with **OA knee pain**, there is **insufficient evidence** for the panel to recommend one intervention over the other intervention or vice versa for the following interventions. The panel recommends that decisions be based on shared decision making with the patient and consideration of available resources. • Exercise vs. pharmacological therapy (acetaminophen and NSAIDS) • CBT / Motivational interviewing / Pain coping skills training vs. usual care • Pain coping skills training vs. exercise • Manipulation vs. usual care or vs. exercise • Massage vs. usual care • Tai Chi vs. attention control • Acupuncture vs. usual care, no treatment, waitlist, or sham or vs. exercise	Based on the literature reviewed that met the IOM standards, there was insufficient evidence for the panel to be able to recommend for or against the listed interventions or treatment comparisons. The panel recommends that decisions be based on shared decision making with the patient, consideration of available resources, and concurrently addressing other comorbid factors that can potentially impact the clinical situation (e.g., weight reduction).
For patients with **OA hip pain**, there is **insufficient evidence** for the panel to recommend one intervention over the other intervention or vice versa for the following interventions. The panel recommends that decisions be based on shared decision making with the patient and consideration of available resources. • Manipulation vs. usual care or vs. exercise.	Based on the literature reviewed that met the IOM standards, there was insufficient evidence for the panel to be able to recommend for or against the listed interventions. The panel recommends that decisions be based on shared decision making with the patient, consideration of available resources, and concurrently addressing other comorbid factors that can potentially impact the clinical situation.
For patients with **OA hand pain**, there is **insufficient evidence** for the panel to recommend one intervention over the other intervention or vice versa for the following interventions. The panel recommends that decisions be based on shared decision making with the patient and consideration of available resources. • Exercise vs. usual care. • Multidisciplinary/interdisciplinary rehabilitation.	Based on the literature reviewed that met the IOM standards, there was insufficient evidence for the panel to be able to recommend for or against the listed interventions. Patients with chronic hand pain may benefit from being referred to a hand specialist as therapy from a hand specialist can be useful by introducing alternative mechanisms for performing activities of daily living. The panel recommends that decisions be based on shared decision making with the patient and consideration of available resources. The panel was unable to form conclusions whether to recommend for or against multidisciplinary/interdisciplinary rehabilitation as the study included within the systematic review did not meet the definition for multidisciplinary rehabilitation. The multidisciplinary rehabilitation study reported in Skelly and colleagues (2020) did not follow the usual pattern of care offered in most multidisciplinary rehabilitation programs. Therefore, no conclusions could be drawn from this study. The panel recommends that decisions be based on shared decision making with the patient and consideration of available resources.

Implementation Considerations

The following implementation considerations are based on expert consensus or review of the literature, which can include literature that might not have met criteria for inclusion in the above reviews, such as some observational literature, etc., which is discussed in further detail in the next section.

- The panel encourages treatment planning to be based on a shared decision-making model comprised of clinical judgment, patient preference and safety, with consideration of available resources.
- The panel notes the importance of thoroughly screening patients for any psychiatric, psychosocial, and/or behavioral history prior to beginning treatment.
- The panel encourages clinicians to remain aware of patient access and issues related to disparities across racial/ethnic groups, sexual orientation, gender identity, socioeconomic status, disability (invisible and visible), and rural and urban populations (please refer to the section "Cultural Humility and Diversity Competence" for more information).
- The panel encourages clinicians to remain aware that efficacy trials may have included a narrower group (i.e., no comorbidities) and thus the treatment being tested within the efficacy trial may not be applicable to a broader population.
- The panel encourages clinicians to consider whether the treatment may need to be modified for it to be delivered effectively in a routine clinical setting (i.e., intensity, frequency, insurance coverage / cost, duration, or all the above).
- The panel strongly supports practicing socially competent care and recognizing the potential for unintentional bias.
- The panel strongly supports reimbursement of services that improve functioning in individuals with chronic musculoskeletal pain.
- The panel encourages clinicians to consider referring the patient to a health care professional and/or dietician if appropriate that the patient engages in a weight reduction plan.

Recommendations for Research

- The panel recommends more research on implementing the recommended interventions in real-world clinical settings.
- The panel recommends more research on identifying the types of clinicians that provide the recommended interventions. It encourages the development of guidance for the types of clinicians that can provide the services (e.g., whether it be a pain physician, pain psychologist, etc.).
- The panel recommends increasing research on the interventions where there was insufficient evidence to recommend for or against a specific intervention and ensuring there are adequate sample sizes in randomized controlled studies.
- The panel recommends more research on long-term follow-up after patients receive services for chronic musculoskeletal pain.
- The panel recommends more research on addressing the comorbidities that patients may present with in a clinical encounter that may involve adapting the recommended treatments.
- The panel recommends more research on populations that were not well represented in the studies included within the systematic reviews that served as the underlying evidence base for the recommendation statements. In particular, more research is needed with individuals of diverse racial and ethnic backgrounds given the role of culture and pain. However, additional research is also needed across a diverse range of socioeconomic status, disability, sexual orientation, and gender identities. It also recommends adequate reporting of subgroup analyses.
- The panel recommends further standardization and understanding of what constitutes "treatment as usual" or "usual care." The panel also recommends that future studies include full definitions of the control conditions.
- The panel recommends including "quality of life" as one of the outcomes in future research studies, using high-quality, widely accepted patient-reported tools.
- The panel recommends that researchers define a minimum standard for "patient engagement" in clinical research (Dworkin et al., 2019).

Background and Justification: The Scope of the Problem

Definition of the Problem

Chronic pain is one of the most prevalent, disabling, and costly conditions in the United States. In 2011, the Institute of Medicine (now the National Academy of Medicine) released a seminal report documenting the impact of chronic pain, *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research.* This report included prevalence (up to 100 million people) and cost ($650 billion annually) estimates for chronic pain in the United States (Institute of Medicine, 2011c). In a public health context, both these estimates exceed prevalence and cost estimates reported for heart disease, cancer, and diabetes combined (Institute of Medicine, 2011c). Since 2011, the public health impact of chronic pain has become more apparent due to the ongoing opioid crisis (Saloner et al., 2018).

Specific to the APA clinical practice guideline, musculoskeletal pain is the largest subset of chronic pain conditions (Institute of Medicine, 2011c) and is among the costliest conditions to many health systems in the United States, in part because it increases the risk of opioid prescribing (Dieleman et al., 2020; Moshfegh et al., 2019). Furthermore, while chronic musculoskeletal pain is one of the most common reasons people seek health care (Institute of Medicine, 2011c), it paradoxically remains a leading cause globally of disability (Global Burden of Disease Study 2013 Collaborators, 2015). This pattern of "diminished treatment returns" is untenable, and significant changes in clinical research and practice are needed to correct this paradox. Indeed, this issue of diminishing returns for patient outcomes from chronic musculoskeletal pain is central to the National Academy of Medicine's call for a transformation in patient care (Institute of Medicine, 2011c). The U.S. Department of Health and Human Services also released a recent report that emphasized the importance of "individualized, patient-centered care" in treating chronic pain (Pain Management Best Practices Inter-Agency Task Force, 2019). It is important to note that the definition of chronic pain can vary somewhat in different demographic groups and that treatments can vary in availability (e.g., urban vs. rural location). Treatment preferences may also vary based on individuals' demographics, culture, etc. and as such shared decision making to individualize treatment is of the utmost importance.

Clinical practice guidelines potentially play an influential role in the transformation of care by identifying evidence-based options for patients with chronic musculoskeletal pain. Indeed, there is convergence in clinical practice guidelines for spine pain (the most common type of musculoskeletal pain) in recommending nonpharmacologic treatments (Dowell et al., 2016, 2022; Qaseem et al., 2017). However, what patients receive when seeking care often does not follow these guidelines. For example, the National Ambulatory Medical Care Survey indicated 21.5% of new visits for chronic musculoskeletal pain included opioid prescriptions while only 10.0% included a prescription for a guideline recommended nonpharmacologic treatment option like physical therapy (Feldman et al., 2020). Routine treatments not being guideline concordant is especially concerning given that the vast majority of care for chronic musculoskeletal pain will be conservative. That is, for LBP, it has been estimated that up to 98% of those seeking care will receive some form of treatment (Kim et al., 2019) and those receiving guideline concordant care earlier are less likely to have indicators of low-value care (e.g., advanced imaging, lumbar injections or surgery, and opioid prescription; Childs et al., 2015). This APA clinical practice guideline is designed to inform providers, patients, and health system administrators on treatment options that are recommended to be part of routine care pathways, especially if those pathways are intended to reflect the current evidence base for effective nonpharmacologic options.

Patients with chronic musculoskeletal pain frequently do not receive current evidence-based behavioral or nonpharmacological treatments (Rasu et al., 2013). In particular, these patients frequently receive solely pharmacological treatment, including opioids. In a study examining data from the National Ambulatory Medical Care Survey (NAMCS) from 2000 to 2007, Rasu and colleagues (2013) found that 99.7% of treatments for common nonmalignant chronic pain included at least one common medication, and medications in the opioid class were the third most common type of medication prescribed, after nonsteroidal anti-inflammatory drugs (NSAIDS) and antidepressants. Nonpharmacological therapies were only reported in approximately 26% of patient visits, with exercise (14.9%) and diet/nutrition (11.2%) the most common modalities. Psychotherapy was reported in only 8.6% of visits. The Institute of Medicine (2011c, p. 145) reported that "patterns of opioid prescribing may reflect a need for better education of physicians in this area." A survey of U.S. adults with chronic pain and their management found that of the 31,916 participants only 3.8% reported using psychological therapies for managing their chronic pain (Groenewald et al., 2022).

Opioid prescribing patterns for the treatment of chronic pain contributed in part to the U.S. opioid epidemic, which was declared a public health emergency in 2017 (U.S. Pain Foundation, 2022; U.S. Centers for Medicare & Medicaid Services, 2023). The CDC (2023) attributed the initial increase in unintentional drug overdose death rates to the increased prescription of opioid analgesics, reporting on its website that the quantity of prescription opioids sold to pharmacies, hospitals, and doctors' offices nearly quadrupled from 1999 to 2010 (National Drug Intelligence Center, 2011; Paulozzi et al., 2011;), despite the fact that there had been no overall change in the amount of pain Americans reported (Chang et al., 2014; Daubresse et al., 2013). Unfortunately, opioid-related deaths have increased in spite of reductions in prescribing opioids (Schuchat et al., 2017). The illicit use of fentanyl has played a major role in this process and is considered responsible for the increase in opioid-related deaths (Han et al., 2019).

Available Treatment Guidelines for the Problem

In 2018, when APA considered a guideline on chronic pain, several guidelines were available that addressed pharmacological and nonpharmacological, noninvasive treatments for chronic pain as well as smaller subpopulations of individuals with pain. Table 1 shows the list of clinical practice guidelines that were developed at the time of the topic nomination.

TABLE 1

Clinical Practice Guidelines Developed at the Time of Topic Nomination and Guideline Panel Formation (2018–2020)

Organization (Author, year)	Country	Guideline
Treatment of Subpopulations for Individuals With Chronic Pain		
American College of Physicians (Qaseem et al., 2017)	United States	*Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline from the American College of Physicians*
Infectious Disease Society of America (Bruce et al., 2017)	United States	2017 HIV Medical Association of Infectious Diseases Society of America Clinical Practice Guideline for the Management of Chronic Pain in Patients Living with HIV
State of Colorado Department of Labor (Division of Workers' Compensation, 2017a)	United States	*Complex Regional Pain Syndrome/Reflex Sympathetic Dystrophy*
U.S. Department of Veterans Affairs/ Department of Defense (VA/DoD, 2017a)*	United States	*VA/DoD Clinical Practice Guideline for Diagnosis and Treatment of Low Back Pain*
American Osteopathic Association (2016)	United States	*American Osteopathic Association Guidelines for Osteopathic Manipulative Treatment (OMT) for Patients With Low Back Pain*
American Society of Clinical Oncology (Paice et al., 2016)	United States	*Management of Chronic Pain in Survivors of Adult Cancers: American Society of Clinical Oncology Clinical Practice Guideline*
Pharmacological Interventions for Chronic Pain		
VA/DoD, 2017b†	United States	*VA/DoD Clinical Practice Guideline for Opioid Therapy for Chronic Pain*
VA/DoD, 2020‡	United States	*VA/DoD Clinical Practice Guideline for the Primary Care Management of Headache*
Centers for Disease Control and Prevention (CDC, Dowell et al., 2016)§	United States	*CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016*

Organization (Author, year)	Country	Guideline
National Institute for Health and Care Excellence (NICE, 2013)[¶¶]	United Kingdom	*Neuropathic Pain in Adults: Pharmacological Management in Nonspecialist Settings*
State of Washington (Washington State Agency Medical Director's Group, 2015)	United States	*Interagency Guideline on Prescribing Opioids for Pain* (3rd ed.)
American Academy of Pain Medicine (Chou et al., 2009)	United States	*Clinical Guidelines for the Use of Chronic Opioid Therapy in Chronic Noncancer Pain*
Noninvasive, nonpharmacological interventions		
State of Colorado Department of Labor (Division of Workers' Compensation, 2017b)	United States	*Chronic Pain Disorder Medical Treatment Guideline*
Institute for Clinical Systems Improvement (2017)	United States	*Pain; Assessment, Nonopioid Treatment Approaches and Opioid Management*
NICE, 2016[¶]	United Kingdom	*Low Back Pain and Sciatica in Over 16s: Assessment and Management*
Registered Nurses' Association of Ontario (2013)[#]	Canada	*Assessment and Management of Pain*
American Society of Anesthesiologists (2010)	United States	*Practice Guidelines for Chronic Pain Management*
Pharmacological and nonpharmacological interventions		
Scottish Intercollegiate Guidelines Network (SIGN, 2013)[**]	United Kingdom	*Management of Chronic Pain: A National Clinical Guideline*

Note. The symbols indicate that the following guidelines were updated during the development of this guideline: [˙]updated in 2022 (VA/DoD, 2022a); [†]updated in 2022 (VA/DoD, 2022b); [‡]updated in 2023 (VA/DoD, 2023); [§]updated in 2022 (Dowell et al., 2022); [¶]updated in 2020 (NICE, 2020a); [¶¶]updated in 2020 (NICE, 2020b); [#]this guideline is currently being updated and its anticipated revision publication is 2024; [**]updated in 2019 (SIGN, 2019), though it is currently undergoing revision (anticipated revision publication is November 2024).

The guideline that comes the closest to the current APA guideline is the *Management of Chronic Pain: A National Clinical Guideline* produced by the Scottish Intercollegiate Guidelines Network (SIGN) in 2013. However, that guideline was close to 10 years old at the time the current clinical practice guideline development process began. The SIGN (2013) guideline describes and reviews the efficacy data for several noninvasive, nonpharmacological treatments: multidisciplinary pain management programs, unidisciplinary education, behavioral therapies, cognitive behavioral therapy, mindfulness meditation, and ACT, as well as manual therapy (hands-on massage and similar), exercise, acupuncture, and electrical stimulation.

After the panel began its work, several federal and national organizations updated their guidelines. The VA/DoD updated its guidelines for the treatment of chronic LBP (VA/DoD, 2022a), opioid therapy for chronic pain (VA/DoD, 2022b) and headaches (VA/DoD, 2023). The UK's NICE guideline on assessing all chronic pain and managing primary chronic pain in individuals 16 and older was also updated in 2021. This updated guidance included information on nonpharmacological management of chronic primary pain, such as psychological therapies (ACT and CBT), acupuncture, and electrical physical modalities and pharmacological interventions (NICE, 2021). The CDC also updated its guideline on prescribing opioids for chronic pain (Dowell et al., 2022). The SIGN guideline also went through an update in 2019 and is currently undergoing another revision (anticipated publication in 2024). A best practice guideline on chiropractic management of patients with chronic musculoskeletal pain was released in 2020 (Hawk et al., 2020). Lastly, the American Physical Therapy Association updated its clinical practice guideline for the treatment of acute and chronic LBP (George et al., 2021).

Further, several state and health systems have also published guidelines for treating chronic musculoskeletal pain in adults. Kaiser Permanente published a guideline in 2021 on nonspecific back pain and included newer studies within the guideline, though this guideline did not follow the IOM (2011a) standards for developing clinical practice guidelines. The Tennessee Department of Health released a guideline on outpatient management of chronic nonmalignant pain (2020); however, the guideline primarily focuses on assessing initiating and ongoing opioid therapy whereas the APA guideline focuses on nonpharmacological treatments for chronic musculoskeletal pain.

The APA Clinical Practice Guideline for the Treatment of the Problem

National Academy of Medicine Standards as the Basis for This CPG

In accordance with best practices for guideline development, APA follows the standards set forth by the former Institute of Medicine (IOM; now National Academy of Medicine) 2011 report (IOM, 2011a) to develop high-quality and trustworthy clinical practice guidelines. These standards include ensuring that (1) the development process is transparent, (2) any potential conflicts of interest are reviewed and managed, (3) the guideline panel is multidisciplinary with balanced expertise and including patient/patient representative member(s), and (4) the guideline is informed by a quality systematic review of the literature. Further, (5) each recommendation is to be based on clearly explained rationale including the balance of potential benefits vs. harms, the strength of the underlying evidence, and a rating of the recommendation's strength with the wording clearly indicating its strength. Finally, (6) each guideline should go for external review by a variety of stakeholders with a plan noted for future guideline updates (IOM, 2011a).

Evidence-Based Practice in Psychology

This guideline is predicated on the three dimensions mentioned in the report by APA's Presidential Task Force on Evidence-Based Practice (2006) and APA's (2021) *Professional Practice Guidelines on Evidence-Based Psychological Practice in Health Care:* (1) grounding in the best available science; (2) practitioner expertise in application decisions; and (3) patient preferences, culture, and values. These three areas were consistent with earlier work by the National Academy of Medicine (former Institute of Medicine) and are universally accepted in medicine. In addition, the Advisory Steering Committee and guideline development panel made every effort to fully apply the standards set forth by the IOM of the National Academy of Sciences, Engineering, and Medicine for developing independent, reliable, and high-quality clinical practice guidelines (IOM, 2011a & b).

Treatment Outcomes Considered in the Guideline

The panel discussed several different options for considering treatment outcomes and decided to follow a framework that emphasized the physical functioning and/or performance. These outcomes could be assessed through self-report (i.e., patient reported outcome measures (PROM), with the following PROM outcomes considered "in scope" as outcomes for this guideline:

- Mental health and emotional functioning (e.g., anxiety, depression, anger),
- Health-related quality of life (e.g., impacts on social activities, usual role, vitality, general health, sleep),
- Pain coping (e.g., fear avoidance, pain catastrophizing, acceptance of pain),
- Pain intensity,
- Adverse effects,
- Patient self-efficacy,
- Patient global impression of change, and
- Employment status / disability benefits.

In addition to considering PROM's the panel also considered data collected via direct observation (i.e., range of motion, physical performance test, strength, or endurance/stamina) "in scope" as outcomes for this guideline. It is important to acknowledge that outcome measures may need to be adapted to fit the individual's culture as there are cultural variations in how one experiences and describes chronic pain (Sharma et al., 2016).

Key Questions and Analytic Framework of the Identified Systematic Reviews

This guideline attempted to address the following key questions that were included in the AHRQ's systematic review of noninvasive, nonpharmacological treatments for chronic LBP, chronic neck pain, and OA-related pain (knee, hip, hand; Skelly et al., 2020, p. 4):

1. What are the benefits and harms of noninvasive nonpharmacological therapies compared with sham treatment, no treatment, waitlist, attention control, or usual care [i.e., treatment as usual (TAU)]?

2. What are the benefits and harms of noninvasive nonpharmacological therapies compared with pharmacological therapy (e.g., opioids, nonsteroidal anti-inflammatory drugs, acetaminophen, antiseizure medications, antidepressants, topical agents, medical cannabis, and muscle relaxants)?

3. What are the benefits and harms of noninvasive nonpharmacological therapies compared with exercise?

4. Do estimates of benefits and harms differ by age, sex, presence of comorbidities (e.g., emotional or mood disorders), or degree of nociplasticity/central sensitization?

There were, however, gaps identified within the AHRQ systematic review in areas of interest to the panel that were outside the scope of the review considering limited resources (Skelly et al., 2020). These areas included head-to-head comparisons among noninvasive nonpharmacological interventions, certain nonpharmacological interventions (e.g., biofeedback, exercise, complimentary and integrative medicine, self-management interventions), some important outcomes (e.g., health-related quality of life, patient global impression of change), and settings beyond medical office encounter. There was also uncertainty about whether relaxation, coping skills training, pacing, "pain journaling/diary," and self-management were included in the review's umbrella definition of "multidisciplinary interventions." To address these gaps, the panel supplemented the AHRQ review with two recent systematic reviews: one that addressed self-management for chronic widespread pain (Geraghty et al., 2021) and another one that addressed psychological interventions for chronic pain, excluding headache (Williams et al., 2020).

Process and Methods for the CPG

Scoping

At its first videoconference call and several subsequent calls, the panel began discussion of the topic scope of the guideline and continued to discuss scope over several subsequent calls. The panel followed a PICOTS (Samson & Schoelles, 2012) approach to scoping. Using this approach, each PICOTS element served to frame decision making about scope. In determining its audience, the panel noted that practitioners from various disciplines (e.g., psychology, nursing, occupational medicine, physical therapy, social work) provide nonpharmacological interventions for the treatment of subacute and chronic pain. It was agreed that the guideline would be developed with multiple audiences in mind, including practitioners from various disciplines, individuals with chronic musculoskeletal pain and their significant others, and policy makers.

Panel members considered the differentiation between acute and chronic pain, including whether to address secondary prevention as it is relevant to preventing the progression from acute to chronic pain. Relevant to this point, members discussed potential interventions including strategies to reduce maladaptive fear-avoidance responses to pain as well as self-management skills to prevent the transition from acute to chronic pain. It considered creating two separate clinical practice guidelines, one on interventions that would address prevention of chronic pain while the other one would address treatment of chronic pain. It sought feedback from the Advisory Steering Committee (ASC); however, the ASC was not sure whether there was sufficient research literature to serve as the basis for developing a second clinical practice guideline that would address the prevention of chronic pain. The ASC was also concerned about the broad scope of developing a second guideline for preventing chronic pain.

Members also discussed whether to operationalize "prevention" as "preventing pain" or "preventing disability related to pain." They noted that the latter operational definition of preventing functional disability from developing due to chronic pain would narrow the scope further and therefore could not be included in the guideline.

In the early stages of scoping, the panel used the Delphi method to complete an outcomes prioritization survey. On this survey, panel members rated outcomes from 1, "not important," to 9, "critical," for deciding about what treatment to recommend. The panel narrowed its list of outcomes to nine outcomes. Based on the results of this survey, panel members identified the following outcomes as most critical to its decision making:

- **Physical functioning and performance** (e.g., activities of daily living, impairment, pain-related interference, changes in strength or stamina, range of motion) and
- **Mental health and emotional functioning** (e.g., anxiety, depression, anger, pain coping [e.g., fear avoidance, pain catastrophizing, acceptance of pain])

Scoping decisions about which populations, interventions, comparators, outcomes, timing, and settings to include as well as the key questions are noted in the Scoping section of the Executive Summary.

Vetting and Appointment of Members to the GDP

The Advisory Steering Committee (ASC) released a call for nominations (including self-nomination) to include researchers and clinicians across various professional disciplines (psychology, social work, physical therapy, nursing, occupational medicine) who had content expertise in the topic area of chronic musculoskeletal pain as well as in biostatistics or methodology. The ASC sought those with knowledge of treatment issues related to various dimensions of diversity (such as race/ethnicity, socioeconomic status, culture, gender/sex, sexuality, physical and mental abilities) and treatment settings to seat a panel with diverse perspectives on chronic musculoskeletal pain and its treatment that could discuss the research data and its applicability to those seeking treatment. Additionally, the ASC initially also sought community members who self-identified as having had chronic pain (currently or in the past) or were a close family member of someone with chronic pain and who had relevant leadership experiences such as leadership of groups that looked to enhance public awareness and access to services. However, APA staff also did a targeted recruitment of community members due to low nominations received in this area.

In constituting the panel, there was an effort to incorporate members who represented a broad range of experiences and expertise in the treatment of chronic pain, including variation in terms of psychotherapy models, populations (e.g., adult, older adult, underserved populations), settings (academic, community, primary care), roles (clinician providers, researchers, health care administrator, health care consumer), and disciplines (psychology, nursing, social work, physical therapy, occupational medicine). While it would not be possible for a panel of this size to represent all constituencies and interests in a truly equitable fashion, the mandate to the panel was to include as broad a perspective as possible when reviewing the literature. Once the ASC reviewed the nominations, it sent its recommended nominees for review to the Board of Professional Affairs (BPA) and Board of Scientific Affairs (BSA). Once reviewed and vetted by BPA and BSA, the final nominations were then sent to the Board of Directors for final review and provisional appointment. Final appointment was made upon review of any potential conflicts of interest, described next.

Conflicts of Interest

Before confirming the appointment to the guideline development panel, nominees provided information about possible conflicts of interest, a significant issue in the IOM standards and current best practices in guideline development. *Conflicts of Interests (COI)* are defined as,

> a divergence between an individual's private interests and his or her professional obligations such that an independent observer might reasonably question whether the individual's professional actions or decisions are motivated by personal gain, such as financial, academic advancement, clinical revenue streams, or community standing (Institute of Medicine, 2011, p. 78; the definition is drawn from Schünemann et al., 2009, p. 565).

The IOM report additionally discusses intellectual conflicts of interest relevant to clinical practice guidelines, defined as "academic activities that create the potential for an attachment to a specific point of view that could unduly affect an individual's judgment about a specific recommendation" (IOM, 2011, p. 78; the definition is drawn from Guyatt et al., 2010, p. 739).

Candidates to the guideline development panel each completed an APA Conflicts of Interest disclosure form. Emphasis was placed on disclosing all potential conflicts for the APA staff and ASC members to review and decide upon. While intellectual affiliations were expected, no panel members were to be singularly identified with particular interventions nor were they to have significant known financial conflicts that would compromise their ability (or appearance thereof) to weigh evidence fairly. The ASC understood however that some "adversarial collaboration" (Mellers et al., 2001) or standing for different points of view was expected and encouraged as part of the process.

Once the panel was formed, members verbalized any actual or potential conflicts in their meetings, so all members of the guideline development panel would be familiar with the diversity of perspectives and range of possible influences and biases. COI forms were updated annually, and panel members and staff were asked to give more frequent updates if there were any changes in their disclosures that could be relevant to the development of an unbiased guideline.

The panel used multiple strategies to identify and manage COI. Panel members (and ASC members and associated staff) all completed a disclosure form on an annual basis that was reviewed by APA staff. The panel asked members to disclose emerging potential COI at all meetings and on phone calls. The agendas for the meetings incorporated such disclosures into their structure. Several strategies that could be used to manage COI involved some combination of recusing from the discussion of a particular topic, recusing from voting on certain issues or a combination of the two. The APA conflicts of interest policy and disclosure form is in Appendix C.

Comprehensive Search of the Professional Literature

A *systematic review* involves a methodical and organized search for studies and evidence of efficacy and effectiveness of the treatment under consideration (IOM, 2011b). A *meta-analysis* is the use of quantitative statistical methods in a systematic review to integrate the results of included studies. Briefly, a systematic review or meta-analysis involves searching a variety of scientific databases using selective search terms to find relevant studies, then assessing the identified individual studies to decide whether they meet inclusion criteria and using predefined criteria to assess risk of bias. Results are then compiled and analyzed.

The IOM (2011a) standards require the use of one or more systematic reviews for guideline development. APA staff advised the panel to select the fewest number of systematic reviews needed to address the panel's identified scope in order to keep the guideline development process manageable. Ideally the panel will use reviews that are at most 3 years old (2018-present) so that the reviews are not more than 5 years old at the time of guideline approval and publication (estimated around 2024), given that a systematic review is considered outdated after 5 years.

For the current guideline, the panel used a systematic review of the literature focused on comparisons of noninvasive nonpharmacological interventions for the treatment of chronic pain, including low back, neck, OA-related (knee, hip, hand), fibromyalgia, and chronic tension headache (Skelly et al., 2020). While the panel, at first, was interested in including chronic tension headache as this could be muscular or vascular in nature, after reviewing the public comments on its PICOTS and identified systematic reviews, it decided to exclude headaches. It also excluded Fibromyalgia as outside the scope of the guideline.

Due to gaps in the type of treatment comparisons and approaches as well as outcomes included in the first review, two more reviews were identified and used to address these areas (Geraghty et al., 2021; Williams et al., 2020). These areas included self-management, adjunctive noninvasive nonpharmacological interventions, head-to-head comparisons of noninvasive nonpharmaceutical interventions, health-related quality of life, and patient global impression. The panel followed best practices of using reviews current within the past 5 years. The search methods APA employed in searching for systematic reviews and meta-analyses can be found in Appendix I of the guideline.

Identified Systematic Reviews' Definition of Chronic Pain and Search Methods

Skelly and colleagues (2020) defined chronic pain as "pain lasting 3 months or longer or persisting past the normal time for tissue healing" (the definition is drawn from IOM, 2011c). Please refer to *Appendix A: Search Strategies* of Skelly et al. (2020) for the list of keywords used in searches for articles of the review. The second systematic review, by Geraghty and colleagues (2021), examined self-management interventions for chronic widespread pain and within the review only included interventions that met the definition of "self-management" from Miles et al. (2011). According to Miles et al. (2011), the self-management intervention had to address at least two of the following five intervention components: "psychological, physical activity, mind-body, lifestyle, and medical education" (p. 775). Please refer to *Supplement 2: MEDLINE search strategy* in Geraghty et al. (2021) for the list of keywords used in searches for articles of the review. The third and final review addressed psychological interventions for chronic pain in adults excluding headache and defined chronic pain as "reporting pain of at least three months' duration in any body site, not associated with a malignant disease" (Williams et al., 2020, p. 8). Please refer to *Appendix 1. Search strategies* in Williams et al., (2020) for the list of keywords used in searches for articles of the review.

Decisions Regarding Assessment of Inclusion / Exclusion Criteria

Decisions on the assessment and inclusion/exclusion of studies varied based on the particular systematic review/meta-analysis. Please refer to the systematic reviews/meta-analyses for specific details. However, broadly, the reviews included only randomized controlled trial (RCT) studies as those studies met quality criteria for questions regarding efficacy. The panel observed that the Skelly et al. (2020) review excluded chronic pain related to neuropathy, radiculopathy, rheumatoid arthritis, lupus, and other conditions. In terms of the "intervention" category, it was unclear whether Skelly et al. included psychological interventions in "multidisciplinary interventions" or included psychological components its "exercise interventions." The panel agreed to supplement a review that examined solely psychological interventions (which included behavior therapy, ACT, and CBT for treating chronic pain (Williams et al., 2020). The review also excluded self-management interventions, which warranted the panel to include a supplementary review that addressed these interventions (Geraghty et al., 2021).

Assessing Strength of Evidence

Strength of evidence was rated as either "insufficient/very low," "low," "moderate," or "high" based on the combined results of analyses of risk of bias, inconsistency, indirectness and imprecision. While APA staff prepared the Grid for the panel based on information extracted from the reviews and studies, the panel made all the decisions regarding the evidence and recommendations. Specifically, APA staff inserted information from the reviews and studies on quality ratings, outcomes examined and associated effect sizes, harms and burdens of interventions (as described in more detail below),

study results on patient values and preferences, and study participant descriptions the panel might want to reference for discussions on applicability. As the panel discussed the Grid, APA staff transcribed the panel's decisions into each cell of the Grid.

Types of Comparisons (Controls) Used by Studies

The types of controls that were used in the AHRQ systematic review (Skelly et al., 2020) were sham treatment, waitlist, usual care (defined as care that might be provided or recommended by a primary care provider; also known as TAU), no treatment, and attention control intended to control for nonspecific events (e.g., time, attention, patient expectations). The AHRQ (Skelly et al., 2020) review's comparators differed from what the panel noted in its PICOTS framework, in that the review excluded surgical interventions (while the panel's PICOTS included these interventions as a comparator), studies examining the incremental value of adding noninvasive nonpharmacological intervention to another noninvasive nonpharmacological intervention and comparisons within nonpharmacological interventions. The AHRQ review also excluded self-management interventions, which warranted supplementing an additional review by Geraghty and colleagues (2021). This systematic review defined the comparators as placebo, waiting list control, usual care, and head-to-head comparison of one self-management intervention versus another self-management intervention (Geraghty et al., 2021). The final review that examined psychological interventions for chronic pain, excluding headache, defined their comparators in two tiers: active control (e.g., physical therapy, education, or medical intervention) and TAU, which was defined according to the specific study included in the systematic review (waiting list control was also merged with TAU in the review; Williams et al., 2020).

Development and Use of Grid

The Grid is a document used by panel members to summarize and evaluate the evidence generated in the systematic review or meta-analyses, along with any supplemental information. Panel ratings and judgments were documented on the Grid to aid in the formulation of recommendations (Treweek et al., 2013). These tables allow panel members to document decisions, compare consistency across decisions, and give transparency to reviewers and users of the guideline document. The four main domains of decision making are as follows: 1) overall strength of evidence, 2) the balance of benefits vs. harms and burdens of interventions, 3) patient values and preferences, and 4) applicability of the evidence across PICOTS.

Completion of Grid

The four domains below formed the basis on which the panel decided each treatment recommendation and its strength. For each recommendation, the panel included text description and a justification for the recommendation on the Grid (see separate link).

Rating of Aggregate/Global Strength of Evidence. For each of the cells within the Grid, *aggregate/global strength of evidence* was based on the strength of evidence from the review for the two critical outcomes, namely, physical functioning and performance and mental health and emotional functioning. The panel followed the Grading of Recommendations Assessment, Development and Evaluation (GRADE) consortium guidance that the aggregate strength of evidence could be no higher than the lowest individual strength of evidence for each of the critical outcomes (Guyatt et al., 2013). For example, if one critical outcome had "high" strength of evidence but the other critical outcome had "low" strength of evidence, the global quality of evidence for that particular decision table or column in the Grid would be "low," since that is the lowest strength of evidence for an individual critical outcome.

Assessing Magnitude of Benefits. One of the key components of the decision-making process for the guideline developmental panel was assessment of the balance between benefits and harms. This required the quantification of both benefits and harms.

Quantification of benefits was based on data from the quantitative meta-analyses for each of the important and critical outcomes that the panel had selected at the start of the guideline development panel process for those interventions that had at least low quality of evidence for the critical outcome, response to treatment. For each of the outcomes on the Grid, the panel rated the magnitude of benefits as "large," "modest,"[12] or "small" benefit of Treatment 1 relative to Treatment 2 and the reverse or "No difference in effect" or "Unable to rate." The rating system was used for assessing harms/burdens.

Assessing Magnitude of Harm/Burdens. Harms were differentiated from burdens that were identified as disruptions associated with treatment (i.e., time spent, homework/need to practice, cost, convenience) rather than as injury. As discussed earlier, the review of the treatment literature did not generate sufficient data on harms and burdens of interventions because, unfortunately, this information is not routinely reported in studies of psychosocial interventions. In light of this deficit, the APA Task Force to Revise the Journal Article Reporting Standards (JARS) for quantitative research included the suggestion that randomized controlled trial (RCT) researchers report data regarding harms and burdens

12 However, the panel later decided that it preferred the term "moderate" instead of "modest."

including indicating "none" if there were none (Appelbaum et al., 2018).

The panel also discussed the issue of attrition as a possible harm. Because attrition in a randomized trial can signify different things (e.g., stopping because treatment is not acceptable or tolerable versus discontinuing due to early symptom relief) the panel did not consider it to be a harm unless information regarding the reasons for attrition were specified.

Finally, to supplement the limited information on harms and burdens gleaned from published research, clinicians on the panel reported their experiences in delivering, supervising, or training, in particular interventions and the concerns noted by colleagues. Likewise, consumer members reported on their own and peer's experiences with various interventions. In general, many of the identified harms and burdens pertaining to psychosocial interventions were more general and common to most psychosocial treatments, for example, the potential for short-term exacerbation of symptoms (harm) or the time necessary for multiple psychotherapy sessions (burden). Further, clinicians and consumer members reported various side effects as potential harms of medication treatment. Though it was important to obtain all available sources of information on patient values and preferences, due to the inclusion of both anecdotal (i.e., clinician and patient report) and peer-reviewed article information, the strength of evidence on these topics was rated as insufficient/very low.

Once possible harms and burdens were identified, panel members then compared these with the benefits of the interventions. On the Grid the panel rated whether the balance of benefits to harms/burdens strongly or slightly favors Treatment 1 over Treatment 2 or the reverse, the balance of benefits to harms/burdens was the same, or it was unable to determine the balance of benefits to harms/burdens between Treatment 1 and Treatment 2.

Assessing Patient Values and Preferences. In addition to assessing the benefits and the harms/burdens associated with specific interventions, the panel attempted to ascertain patient values and preferences. As described above, to ascertain this information, the panel relied on a search of the literature, and on clinicians and consumers/community members on the panel who voiced their perspectives about preferences for different interventions as well as the value that patients might place on different outcomes or harms/burdens associated with particular treatments. The strength of evidence (SOE) for all this information was very low because it included observational studies and "expert" (i.e., panel member) opinion.

Applicability of Evidence. The final determinant that panel members considered, before making recommendations, was the *applicability (generalizability)* of the evidence to various populations and settings. To organize information on applicability, panel members applied the PICOTS framework to review specific information from the studies to determine if there were any concerns pertinent to applicability about the population, interventions, comparators, outcomes, timing, or settings to be noted in each cell on the Grid.

Each panel member received a clear opportunity to raise any questions or concerns about the process of completing the Grid throughout the process and again at the end. The panel was divided into subgroups and reviewed the Grid to identify any questions or concerns that users of the guideline (including patients, clinicians, scientists, and administrators) might raise. After completing the Grid, the panel globally reviewed it to ensure consistency in decision making across recommendations. For purposes of consistency across all clinical practice guidelines, the Advisory Steering Committee established voting procedures that may be found in Appendix D.

Diversity of Samples Included in Reviews

The review used to explore the effectiveness of noninvasive, nonpharmacological treatments for chronic musculoskeletal pain, specifically low back, neck, osteoarthritis of the knee, hip, and hand, comprised a combined 150 studies (Skelly et al., 2020). Most samples included in the studies identified as female, non-Hispanic White and the average age range fell in the typical range in reporting chronic pain, which according to the CDC is between 45–64 years (25.8%, respectively) and 65 years and older (30.8%, respectively; Zelaya et al., 2020). The average age of the 25,753 participants was 53 years and, out of the studies with available data, 146 studies had approximately 65% female, while 37 studies had approximately 21% non-White participants. Only five of the 150 studies reported ethnicity data and of those studies, 9% of participants identified as Hispanic / Latino/a/e/x. Also, studies largely included international samples with approximately 29% of samples from the United States. The non-U.S.-based samples included Australia, Brazil, China, Denmark, France, Egypt, Finland, Germany, Hong Kong, India, Iran, Italy, Korea, Malaysia, The Netherlands, New Zealand, Norway, Spain, Sweden, Taiwan, Turkey, and the United Kingdom.

The review used to explore the effectiveness of multicomponent interventions for chronic widespread pain was comprised of 39 studies (Geraghty et al., 2021) and the average age of the 5,011 participants was 49 years. Out of the studies with available data, 37 studies had 95% female. One study reported 14% of participants identifying as Hispanic / Latino/a/e/x and the six studies that reported racial demographic data reported approximately 8% of participants identifying as non-White. This review also had a large international representation, with approximately 21% of samples from the United States. The non-U.S.-based samples included Australia, Brazil, Canada, Denmark, Germany, Italy, The Netherlands, Romania, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

The final review used to explore the effectiveness of psychological interventions for the treatment of chronic pain (excluding headache) was comprised of 75 studies (Williams et al., 2020) and the average age of the 9,586 participants was 51 years, with 73% of the samples identified as female. Twelve studies reported ethnicity data, with approximately 8% of the samples identifying as Hispanic / Latino/a/e/x; of the 29 studies that reported additional demographic information, around 19% of participants identified as non-White. 39 of the 75 studies were conducted in the United States and the remaining non-U.S.-based samples included Australia, Brazil, China, Finland, Germany, Iran, Italy, The Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom.[13]

Comorbidity of Samples Included in Reviews

The AHRQ systematic review (Skelly et al., 2020) noted a significant gap in the literature in differentiating the types of chronic pain conditions and that there was lack of research on the efficacy of noninvasive nonpharmacological interventions for pregnant or breastfeeding individuals with chronic pain. Skelly et al. (2020) also excluded patients with chronic pain and comorbid medical conditions (e.g., cancer, HIV, neuropathy) and addiction. Most patients within the included studies of the Geraghty et al. (2021) review had chronic widespread pain or fibromyalgia, and the review authors did not report any comorbidities. The final review that examined psychological interventions for chronic pain (Williams et al., 2020) had studies that excluded patients with comorbid psychiatric disorders.

Decision Making Regarding Treatment Recommendations

Based on the ratings of these four factors (strength of evidence, balance of benefits versus harms/burdens, patient values and preferences, and applicability), the panel then decided its recommendation for a particular treatment or comparison of treatments. The options ranged from strong (recommend) or conditional (suggest) recommendation either in support of or against a particular treatment based on the combination of these factors. The panel could also choose to decide that there was insufficient evidence to make a recommendation about a particular treatment, which would therefore be moved to the third tier "other treatments reviewed." Panel members were divided into subgroups to complete the Grid and, after each working call, APA staff sent out a voting poll where the first subgroup would review the second subgroup's draft recommendation statements (and vice versa). Based on its review of the evidence and treatment recommendations, the panel then drafted the next two types of consensus-based recommendations recently approved by the Advisory Steering Committee:

- **Implementation Considerations**. These statements are focused more on context and can cover areas such as the following:
  - » Equity, diversity, and inclusion;
  - » Barriers to treatment;
  - » Comorbidities;
  - » Training / competency;
  - » Implementation;
  - » Treatment engagement; and
  - » Change processes.
- **Recommendations for Research.** The panel drafted recommendations for future research prioritization based on its review of the evidence and gaps noted.

13 Please see Appendix H, which summarizes the demographics from each of the three reviews.

External Review Process

To increase transparency in APA's guideline development process, APA solicited public feedback on the panel's initial decisions to develop a clinical practice guideline for the treatment of chronic musculoskeletal pain in adults for 30 days. The panel revised the proposed decisions based on that feedback. Detailed responses to public comments are available on the APA website.

APA then solicited public feedback on the draft guideline document for 60 days. The panel revised that draft document based on that feedback. Detailed responses to public comments on the draft document are available on the APA website.

APA will review the final document within 10 years following adoption as policy. A decision to sunset, update, or revise the guideline will be made at that time.

Considerations for Treatment Implementation

Shared Decision Making

The panel emphasizes the importance of shared decision making between the provider and patient. Shared decision making is when a "health care provider and patient work together to make a health care decision based on what is best for the patient" (AHRQ, 2020). The AHRQ (2016) developed a SHARE approach with five important steps that go into the shared decision-making process between the health care provider and patient:

STEP 1: Seek your patient's participation.
STEP 2: Help your patient explore and compare treatment options.
STEP 3: Assess your patient's values and preferences.
STEP 4: Reach a decision with your patient.
STEP 5: Evaluate your patient's decision.

The panel encourages clinicians to refer to the AHRQ's (2016) SHARE approach for more information on how to apply these steps during a patient encounter. It is critical that clinicians consider the patients' values, preferences, and culture as, for example, there are differences between Hispanic [Latin-x/e/o/a] and non-Hispanic Whites preference for how they will want to engage with the physician in the shared decision-making process (Katz et al., 2011).

There is a wealth of evidence that shows the benefits of developing an equal partnership between patients and their health care providers in determining what is best for the patient who presents with chronic musculoskeletal pain and patients identify "shared decision making" as the top priority in research and clinical practice (Beneciuk et al., 2020). Equally important is how the patient perceives their pain as this could impact treatment choice, uptake, and effectiveness (Bee et al., 2016; Brown et al., 2010). Indeed, patients who expect to receive high-quality treatment may respond with improved pain and psychological outcomes (Cormier et al., 2016).

There needs to be adequate time to allow shared decision making to occur between the provider and patient while respecting the patient's autonomy in treatment choice. Shared decision making needs to be communicated to the patient in an understandable form.

The panel strongly supports reimbursement of services that improve functioning in individuals with chronic musculoskeletal pain.

Informed Consent: What Patients Need to Know

For a person with pain, it is vital that they have a clear understanding of what it means to provide an informed consent to participate in any form of research. Given the limited knowledge of research by the average person, the panel encourages clinicians and researchers to consider the following details when creating an informed consent document:

- First and foremost, the panel recommends that the reading level be no greater than eighth grade level to ensure the form is understandable.
- Participant's consent is completely voluntary, and they may withdraw from the study at any point.
- Clearly state the purpose of the study, time involved, location, possible risk and benefits, and other requirements of the participant.
- Ensure confidentiality of all personal information.
- Provide the study name, the name of the principal investigator, and contact information for the institution conducting the study.

Before asking for a signature, give the participant time to read the consent form, review major points, ask if they have any questions, and have the person presenting the form sign and date it also.

Appropriate evaluation by a health care professional is important before beginning an exercise program. Occasional reinforcement from a health care professional and support from peers is important as well.

Role of Patient and Provider Factors in Treatment for the Problem

Living a life with chronic pain is filled with many obstacles, both seen and unseen. It is a long journey from the initial start of the pain until it becomes chronic. Along the way there are numerous twists and turns in the diagnosis, treatment, and management of pain. A health care professional (HCP) needs to keep in mind that people with pain (PWP) are often defensive and skeptical toward recommendations and advice from HCP.

Such responses from PWP may be because they have been through so much as they journey through the health care

system. PWP have been faced with skepticism, doubt, and outright accusations of malingering. It is critical that HCPs believe PWP's report of pain if together you are to progress toward any type of meaningful partnership. PWP need validation knowing the HCP believes their report of pain. This may help PWP lower their defenses and be more willing to work as equal partners of the treatment team. The panel recommends that PWP participate in all decision making about their care and treatment. To achieve this, HCP can ask patients to identify their treatment goals. What is it the PWP want to get out of their interaction with the health care team? The HCP might be surprised at the responses (American Chronic Pain Association, n.d.).

It is also important to understand that decision making about treatment, including consideration of treatment effectiveness information, needs to be a shared decision with the PWP as an active participant rather than as a passive patient. PWP will become more invested in their care and treatment when they are an integral part of discussions and decisions. Offering a treatment such as physical therapy may be appropriate. However, physical therapy alone will not help PWP engage. One therapy alone may not help. Most PWP have already tried a singular or even multiple approaches. The key to successful therapy and treatment for a PWP is designing the right combination of treatments and therapies for that individual, considering their needs, desires, and values.

Many personal factors may affect a patient's choice of treatment (e.g., desire for physical activity, social functioning). The panel encourages HCPs to educate the patient about the potential benefits vs. harms of treatments. For example, with exercise, "fear of pain" or "fear of falling" are commonly identified in patients and may impact their motivation to exercise. HCPs can also consider the timing of treatment and other related patient preferences.

Barriers to Treatment

There are multiple barriers to treatment. The studies that examined CBT vs. TAU in individuals with chronic pain is skewed to individuals with higher incomes and in metropolitan regions, yet there are just as many if not more individuals living in rural areas who have chronic pain (Dahlhamer et al., 2018). These individuals may face increased challenges with accessing services in smaller rural areas. Other barriers to psychological treatments range from the time involved in treatment to worrying about not doing the meditation correctly (Cattanach et al., 2021).

Further barriers identified for patients with knee OA include cost (Selten et al., 2016), poor communication between patient and provider, side effects from pharmacotherapy, and fear that pain will worsen if they were to exercise (Spitaels et al., 2017). Interestingly, patients also assumed that the knee pain they were experiencing was part of the "normal aging process" and that further intervention was not warranted (Spitaels et al., 2017). Additionally, assumptions by HCPs that PWP who seek opioid treatment want drugs may impede patients in pursuing effective treatment (Driscoll et al., 2018). Many barriers beyond these brief examples exist. Taken altogether, though, these examples highlight the need for HCPs to be aware of and assess for barriers to facilitate effective and appropriate treatment to alleviate chronic pain.

Treatment Engagement

To facilitate effective treatment, the panel recommends that HCPs also consider ways to engage patients in treatment. For example, a qualitative study of the perspectives from individuals with LBP found that they placed great importance on receiving further explanation for the cause of their LBP beyond diagnosis as they engage in shared decision making (Dima et al., 2013). Further, a focus group study of patient and HCP's perspectives of chronic pain management, found that patients desired providers with strong, trustworthy, and nonjudgmental communication skills; providers noted systemic barriers ranging from insurance coverage to lack of resources that significantly impedes patient outcome; providers also emphasized early education (Kim et al., 2021). Similarly, patients with shoulder pain and their HCPs also noted that the collaborative relationship between patient and provider is critical for deciding which treatment will work best for the particular patient (Maxwell et al., 2022).

Particularly given the isolation of PWP, it is important to help patients know that they are not alone in their journey. Offering group sessions with other people with similar lived experiences, when available, can be valuable as a complement to other types of therapies in addition to individual treatment. HCPs may want to explain the link between pain and emotions. HCPs might also consider that past experiences may have an impact on the way one copes with life situations, including pain. Further, consider that many PWP have been told, when seeking treatment, that their pain is not real, exaggerated, or all in their head. This type of invalidating experience may occur when seeking medical treatment, in the workplace, at school, or within their family and may contribute to factors that can further impact pain (Boyd, 2012; Kattari et al., 2018). Validation of PWP's hurt is one key to helping them move forward. It is also important to acknowledge the involvement and well-being of informal caregivers such as spouses, family members, and other individuals who are caring for their loved ones with chronic pain (Ojeda et al., 2014; Smith et al., 2021). Taken altogether, taking time to engage patients in treatment is critical to addressing and alleviating chronic pain.

Professional Competence

When seeking treatment, it is critical that care be delivered by an individual with demonstrated competence in the field in which they practice. Maintaining licensure is a bare minimum standard for engaging in independent clinical activity in any state but, unfortunately, cannot by itself ensure an HCP is

working within their scope of practice. Specifically, licensure alone is often not sufficient to guarantee that a clinician possesses proficiency in pain care. Board Certification and fellowship training may be helpful standards, but they are not universal in the treatment of pain across different professions. Not all fields offer board certification, and the availability of formal training varies dramatically by profession.

Fishman and colleagues (2013) proposed a set of interprofessional core competencies be held by individuals involved in the study or practice of pain and categorized them into four domains: 1) The multidimensional nature of pain: what is pain? 2) Pain assessment and measurement: how is pain recognized? 3) Management of pain: how is pain relieved? and 4) Clinical conditions: How does context influence pain management? The concepts of this comprehensive framework have been applied in nursing and psychology (Herr et al., 2015; Wandner et al., 2019). While attempts have been made to create a universal pain certification (e.g., American Society of Pain Educators Exam), there has been no widespread adoption. The vast number of subspecialties involved in the treatment of pain makes such an endeavor challenging; however, emerging trends toward interprofessional core competencies may help ensure that all practitioners involved in pain treatment are at least operating based on the same standard of care. In psychology, formal pain training is available, but no board specialization currently exists for this field, making it challenging to find clinicians with this expertise. With a dearth of pain specialists to treat chronic musculoskeletal pain in all populations, patients may resort to medications more than evidence-based interdisciplinary pain management programs.

Implementing Research in Practice

The panel also encourages clinicians to identify strategies in translating research into practice. One such strategy is referring to the five steps of translating research into action, (Holtrop et al., 2021, p. 3):

- **Reach** the target population.
- **Effectiveness** or efficacy of the intervention.
- **Adoption** by target staff, settings, systems, and communities.
- **Implementation** consistency, costs, and adaptations made during delivery.
- **Maintenance / sustainment** of intervention effects in individuals and settings over time.

Comorbidities

Before beginning treatment, the panel suggests thoroughly screening patients to obtain additional information about their psychiatric, psychosocial, and behavioral histories. Such data gathering may include the following elements (Dworkin et al., 2005):

- Pain,
- Physical functioning,
- Emotional functioning,
- Patient global impression of change,
- Exposure to adverse events, and
- Treatment history.

The panel encourages clinicians to be aware that efficacy trials may have included a narrow group (i.e., no comorbidities) and might not apply to a broader population. The panel acknowledges that the efficacy trials that were included in the systematic reviews that served as the underlying evidence for the recommendation statements carries one of these limitations and it is discussed in the recommendations for research section.

Monitoring Treatment Response

Assessing and monitoring treatment outcomes and adherence is essential as it allows clinicians and patients to learn whether the implemented interventions are effective, and whether barriers to successful implementation exist (e.g., socioeconomic, cultural, logistic, etc.). Reviewing such data facilitates the modification of treatment plans to better meet patient needs; however, creating successful, dynamic, person-centered treatment plans requires a reliable standard of measure.

Even though pain may occur in conjunction with an objective medical condition, the assessment of pain outcomes relies primarily on measures based on individual reports (PROs). In randomized controlled trials (RCTs) of treatments for pain, current scientific standards for assessing the effectiveness of pain treatments are summarized in a consensus statement by Dworkin and colleagues (2008), called the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (IMMPACT). IMMPACT recommends that the assessment of pain in clinical trials include five dimensions of outcome: level of pain, physical functioning, emotional functioning, patient satisfaction, and the appearance of adverse symptoms. Except for adverse symptoms, all these variables are typically assessed by self-report.

More generally, the director of the National Institutes of Health (NIH) led an initiative in 2002 to chart "a roadmap for medical research in the 21st century" (Zerhouni, 2003). A central function of the NIH roadmap was to define the dimensions of treatment outcomes in a manner independent of diagnosis. The goal was to develop methods of assessing

treatment for all diagnosed conditions, whether medical or behavioral, using the same dimensions. To this end, all branches of NIH oversaw this project, as no single Institute alone was able to address the full scope of the endeavor. A steering committee of seven researchers was appointed to coordinate a collaboration of seven universities, and this committee was in turn overseen by an independent scientific review panel. A decision was made to adopt the World Health Organization's International Classification of Functioning as the conceptual framework. This was followed by a review of prior research; consultation with content experts; conducting multiple patient focus groups; and obtaining input from academic, government, and industry stakeholder groups.

The NIH roadmap to the future process culminated in the identification of a core set of outcome measures (Zerhouni, 2003). These dimensions were pain intensity, pain interference, physical functioning, fatigue, social functioning, depression, anxiety, and sleep. This approach to outcome assessment has considerable overlap with the IMMPACT recommendations and adds additional dimensions as well. Both the IMMPACT and the NIH Roadmap variables recognize that pain is a dimension of treatment outcome that is intrinsically related to other multiple dimensions of outcome, which include physical, social, and psychological variables. Accordingly, when assessing pain treatment outcomes, it is important to consider including these other variables if they are potentially relevant to the study.

Cultural Humility and Diversity Competence

Understanding and implementing evidence-based treatment models is not sufficient to guarantee successful outcomes. Social, cultural, and economic variables are known to impact a person's experience of pain and response to treatment (Cunningham et al., 2012; McGeary et al., 2016; Meints et al., 2016; Tait & Chinball, 2014). Lower socioeconomic status alone has been consistently associated with nearly all aspects of poor health, including increased risk for pain (Poleshuck & Green, 2008). More recent studies have identified the presence of socioeconomic and racial disparities in access to care that may contribute to the poorer treatment outcomes observed within these populations (Hsiang et al., 2019; Licciardone, et al., 2022). Age is also a critical factor to consider as it influences the experience of pain (Mullins et al., 2022). It is thus critically important for clinicians involved in pain care to be aware of the myriad complex relationships among contextual factors, how these may impact care, and that they engage in a process to overcome the identified obstacles. It is also important for PCPs to understand the characteristics of the patient samples included in published clinical trials.

The panel recommends practicing socially competent care and recognizing the potential for unintentional bias. For example, physician implicit biases toward Black patients have been documented (Hall et al., 2015) and disparities in accessing care are evident in the LGBTQIA2s+ community (Abd-Elsayed et al., 2021). Vulnerable populations, such as Native Americans who report the highest prevalence of pain compared to other populations (Zajacova et al., 2022), may only have access to certain treatments, such as medications.

The panel encourages psychologists to attend to the patients' values, preferences, culture, and other individual characteristics and consider them when delivering and adapting treatment to fit the patient. For example, a systematic review of pain beliefs, cognitions, and behaviors found cross-cultural and cross-racial differences in pain management, specifically that African American patients reported using prayer as one way to cope with pain (Orhan et al., 2018). Additionally, the panel encourages psychologists to consider additional barriers individuals with physical, psychological, or intellectual disabilities may experience when seeking treatment for chronic musculoskeletal pain (APA, 2022). Assessing individuals with intellectual disabilities who present with chronic musculoskeletal pain symptoms via self-report alone may not be sufficient for treatment decision making (Doody & Bailey, 2017). For example, treatments may need to be adapted to meet the reading level of the patient with an intellectual disability who is presenting with chronic pain symptoms and caregivers may need to be involved in the treatment process (McManus et al., 2014). Involving friends and family in the care of patients with chronic pain could also increase motivation in patients with chronic pain to participate in daily activities (Fritsch et al., 2024). These brief examples demonstrate the importance of attending to the patients' needs to ensure they receive effective care.

Enhancing Therapeutic Alliance and Other Principles/Processes of Change

In considering treatment effect, it is also important to consider the change process through which treatment has an effect. This section provides a brief high-level descriptive overview of change processes and then provides a brief descriptive summary of this area specific to chronic pain. Please note this section is not based on a systematic review of the literature; rather, it provides several examples, not a comprehensive list of all change processes in chronic pain treatment. This section provides no formal recommendations.

Change processes are defined in three main domains: *change mechanisms*, those factors that drive therapeutic change as you would see, for example, via a mediational analysis (Kazdin, 2007; Laurenceau et al., 2007; Lorenzo-Luaces et al., 2015); *change principles*, characteristics or conditions that can predict the outcome of treatment (e.g., relationship, components of treatment; APA Presidential Task Force on Evidence-Based Practice, 2006; APA, 2021; Castonguay & Beutler, 2006; Goldfried, 1980); and *change events*, interactions between the therapist and patient in the session that

are associated with the outcome of treatment (Greenberg, 1986). Additional details for each of these domains follow.

Numerous studies have examined *change mechanisms* in depression treatment literature. For example, a systematic review by Lemmens et al. (2016) sought to identify mediators for treatments of depression. Results indicated that change in depression symptoms was mediated by rumination, worry, and mindfulness skills; automatic negative thoughts; and dysfunctional attitude changes. Some reviews indicate that symptom change is indicated by things such as cognitive change (Lorenzo-Luaces et al., 2015), worry, rumination, compassion, mindfulness, and meta-awareness (Velden et al., 2015), and practicing learned skills during homework (Kazantzis et al., 2010; Terides et al., 2017) depending on the type of therapy. Additional examples of mechanisms include various levels of support for things such as less maladaptive representations and relationship rigidity, higher insight, maturity, and reflective functioning (Barber et al., 2013, Minges et al., 2017; Zilcha-Mano, Chiu, et al., 2016a; Zilcha-Mano, Muran, et al., 2016b) and emotional processing (Auszra et al., 2013; Pos et al., 2009; Pos et al., 2003), leading to better outcomes.

Research has identified various c*hange principles*, particularly in the depression psychotherapy literature (Beutler et al., 2006; Castonguay & Beutler, 2006). These include such things as the role of a positive therapeutic relationship (Cuijpers et al., 2012a); the participant (patient) and their personality, attachment, and coping style (Beutler et al., 2006; Bernecker, 2012); readiness to change; and expectations. This domain also includes technical components, such as improving interpersonal functioning, cognitive reappraisals, changing behaviors and associated reinforcements, and the structure of the therapy session (Auszra et al., 2013; Follette & Greenberg, 2006; Missirlian et al., 2005; Pos et al., 2003; Whelton, 2004).

Finally, *change events* include those that occur in the session between therapist and patient. Examples include addressing ruptures in alliance (Safran & Muran, 1996), "unfinished business" (Greenberg & Malcolm, 2002), and resolution of problematic reactions (Watson, 1996). A few mixed-method, small studies have linked change events with outcomes for depression treatment in particular (Greenberg, 1986; Greenberg & Newman, 1996).

While there is much information available on change processes in the depression literature, less literature exists on change processes specific to chronic pain treatment. The Academy of Orthopedic Physical Therapy recently proposed developing a "process-based cognitive-behavioral" approach to providing physical therapy for patients with pain, emphasizing that managing pain is multidimensional (Tatta et al., 2023). Lutsch and colleagues (2022) hypothesized that "pain self-efficacy" and "pain-related disability" may be the driving force of change in digital CBT for patients with LBP, however, there were no significant differences found in the study. Given the heterogeneity in the type of chronic pain one experiences, the mechanisms of change could be identified through personalizing psychological interventions (McCracken, 2023) as well as patients having the opportunity to discuss with one another their experiences of pain and ways of coping through peer support interventions (Stenberg et al., 2023). Psychological flexibility has also been shown to predict outcomes in patients with chronic pain (Trompetter et al., 2019). How providers communicate with patients regarding managing and coping with chronic pain has been identified as one of the key change mechanisms in treatment adherence and acceptability (Rizzo et al., 2023). Patients feeling acknowledged and heard about their pain may also be one of the mechanisms of change seen within the interventions and key to improved outcomes (Nicola et al., 2022; Thielke et al., 2015). Overall, more research is needed in identifying the potential mechanisms of change in the interventions for individuals with chronic pain.

Discussion

How the APA CPG Compares to Other Treatment Guidelines for the Problem

Several other organizations and professional associations have also developed or updated guidelines on treating chronic musculoskeletal pain. This section will highlight recent guidelines for treating chronic musculoskeletal pain in adults from the following state, national, and international organizations: Tennessee Department of Health (2020), State of Colorado Division of Workers' Compensation (2022), U.S. Department of Veterans Affairs/Department of Defense (2022), U.S. Centers for Disease Control and Prevention (Dowell et al., 2022), Canadian Family Physicians (Korownyk et al., 2022), SIGN (2019), and the UK's National Institute for Health and Care Excellence (NICE, 2021). For additional highlights of the recommendations made in each of the guidelines, please refer to Table 2.

The Tennessee Department of Health's (2020) *Clinical Practice Guidelines for Outpatient Management of Chronic Non-Malignant Pain* focused on best practices for assessing chronic nonmalignant pain before initiating opioid treatment as well as best practices for initiating and monitoring opioid therapy for chronic nonmalignant pain and monitoring ongoing opioid therapy. The guidelines are based on a review of national and state guidelines for prescribing opioids and developed consensus-based recommendations for initiating opioid therapy for chronic nonmalignant pain. The appendices list resources ranging from mental health assessment tools to a protocol for tapering opioid therapy. The guidelines differ from APA's guideline in that the APA guideline does not address opioid therapy for the management of chronic pain.

The State of Colorado's Division of Workers' Compensation updated its medical treatment guidelines for LBP in 2022 and developed recommendations based on a review of the evidence and expert and/or consensus judgment. The guidelines emphasize educating the patient, family, community, employer, insurer, and policy maker on the treatment and management of LBP as well as implementing shared decision making during treatment planning. The guidelines also recommend active interventions, such as therapeutic exercises, and to consider including passive interventions as a facilitator to the active modalities and avoiding bed rest. Surgical and other medical interventions, such as epidural injections, are also mentioned in the guidelines if at six-week follow-up appointments there is minimal improvement in pain. The guidelines differ from APA's guideline in that they only focus on LBP while APA's guideline includes other chronic musculoskeletal pain conditions.

The U.S. Department of Veterans' Affairs and Department of Defense (VA/DoD) recently updated its guideline for the management of LBP (2022) and followed the IOM (2011a) standards for guideline development. The VA/DoD guideline focuses on adults with acute, subacute, or chronic LBP with or without neurological symptoms. While this guideline focuses on acute, subacute, and chronic LBP, APA's guideline also includes chronic neck, knee, hip, hand, osteoarthritis, and other widespread pain. The VA/DoD has two "strong for" recommendation statements, both of which are related to conducting a comprehensive evaluation that includes assessing the history and physical and neurological presentation of the patient with LBP as well as referring for further diagnostic testing, if necessary. The APA guideline does not examine the assessment of chronic musculoskeletal pain. The VA/DoD suggests CBT for chronic LBP while APA's guideline has a strong recommendation for CBT for short-, intermediate-, and long-term LBP management and overall chronic musculoskeletal pain.

The CDC's clinical practice guideline for prescribing opioids for pain emphasizes offering nonopioid approaches first and discusses the benefits and harms of opioid therapy if the patient presents with acute pain (Dowell et al., 2022). The CDC guideline also notes using nonopioid pharmacologic approaches, such as NSAIDs or acetaminophen, to alleviate acute pain. For subacute and chronic pain, the CDC guideline also emphasizes the importance of using nonpharmacologic and nonopioid approaches that include exercise, psychological therapy, and other physical and mind-body modalities. Importantly, the CDC discourages opioid therapy as a first-line treatment. The CDC's guideline addresses a variety of pain populations, including cancer pain, postoperative pain, and dental pain, whereas APA's guideline only addresses chronic musculoskeletal pain.

The Canadian Family Physician's guideline for managing chronic low back, osteoarthritic, and neuropathic pain in the primary care setting recommends physical activity for managing osteoarthritis and chronic LBP (Korownyk et al., 2022). The guideline also suggests CBT or MBSR as treatment options for managing chronic pain overall. While the APA chronic pain panel reaches a similar conclusion to the Canadian Family Physician's suggestion of offering MBSR for chronic pain, the APA guideline panel has a stronger recommendation for CBT for chronic pain. While pharmacologic approaches to managing chronic musculoskeletal pain are outside the scope of the APA guideline, Korownyk and colleagues (2022) found opioid and cannabinoid therapies to carry more harms than benefits.

SIGN updated its guideline on the management of chronic pain (2019) and recommends referring patients to a pain management program as well as engaging in exercise and exercise therapies. It also recommends that patients with chronic LBP remain active and that insufficient evidence exists for clinician advice alone. The SIGN guideline also recommends that clinicians offer self-management interventions, which is a similar recommendation to the APA guideline.

The UK's NICE also updated its guidance in 2021 on the assessment of all chronic pain and management of chronic primary pain. In managing chronic pain, the NICE guideline recommends exercise programs and physical activity while it notes to consider ACT or CBT. The latter was inconsistent with the APA panel's conclusions that insufficient evidence exists to recommend for or against ACT for chronic musculoskeletal pain. The NICE guideline (2021) notes that more research is needed on the following psychological interventions for treating chronic primary pain: mindfulness, psychodynamic psychotherapy, and relaxation therapy.

The remaining guidelines that were developed during the development of this guideline were published by Kaiser Permanente (2021) and an independent guideline that focuses on chiropractic management of chronic pain (Hawk et al., 2020). Kaiser Permanente's (2021) guideline focuses on nonspecific back pain and organizes their recommended interventions by patient complexity (low, medium, high pain) based on the STarT back scoring. The Kaiser Permanente (2021) guideline reaches similar conclusions to APA's guideline regarding the overall goal of the guideline: The patient is an active participant and interventions focus on improving quality of life and functioning. Kaiser Permanente's (2021) guideline differs from APA's guideline in that acute, subacute, and chronic levels of pain are included whereas APA's guideline only includes recommendations for treating chronic musculoskeletal pain.

The final guideline by Hawk and colleagues (2020) develops recommendations based on a review of the literature and expert consensus on chiropractic management for chronic pain. While the guideline's scope is on chiropractic care for chronic pain, it includes similar recommendations to other guidelines, noting the importance of considering multiple approaches in managing pain. Other recommendations like APA's guideline include emphasizing the biopsychosocial approach to treatment and combining active and passive interventions, with an emphasis on the patient being an active participant in treatment (Hawk et al., 2020).

TABLE 2

Summary of Recommendations From Clinical Practice Guidelines Developed During APA's Guideline Development

Organization (Author, Year)	Country	Guideline	Summary of Recommendations
State of Colorado Department of Labor (Division of Workers' Compensation, 2022)	United States	*Low Back Pain Medical Treatment Guidelines*	• Emphasizes educating the patient, family, community, employer, insurer, and policy maker on the treatment and management of LBP through shared decision making. • Recommends active interventions as first line (e.g., exercises) and consider passive interventions (e.g., acupuncture) as a facilitator to active modalities. It also recommends avoiding bed rest. • If at 6-week follow-up there is minimal improvement, recommend surgical and other medical interventions (e.g., epidural injections).
U.S. Department of Veterans Affairs, Department of Defense (VA/DoD, 2022)	United States	*VA/DoD Clinical Practice Guideline for Diagnosis and Treatment of Low Back Pain*	• Focuses on the assessment and management of adults with acute, subacute, and chronic LBP with or without neurological symptoms. • Recommends conducting a comprehensive evaluation that includes assessing the history and physical and neurological presentation of the patient with LBP as well as referring for further diagnostic testing, if necessary. • Suggests CBT for chronic LBP, while APA's guideline has a strong recommendation for CBT for short, intermediate, and long-term LBP management and overall chronic musculoskeletal pain.
Centers for Disease Control and Prevention (CDC, Dowell et al., 2022)	United States	*CDC Clinical Practice Guideline for Prescribing Opioids for Pain – United States, 2022*	• Provides recommendations for individuals with acute, subacute, and chronic pain across populations (i.e., cancer, postoperative, dental). • Discourages opioid therapy as a first-line treatment. Emphasizes offering nonopioid approaches first if patient presents with acute pain as well as discussing the benefits and harms of opioid therapy. • Recommends nonpharmacologic and nonopioid approaches that include exercise, psychological therapy, and other physical and mind–body modalities.
College of Family Physicians of Canada (Korownyk et al., 2022)	Canada	*PEER Simplified Chronic Pain Guideline: Management of Chronic Low Back, Osteoarthritic, and Neuropathic Pain in Primary Care*	• Recommends physical activity for managing osteoarthritis and chronic LBP. • Suggests CBT or MBSR as treatment options for managing chronic pain overall. The APA's guideline has a stronger recommendation for CBT for chronic pain. • Noted that opioid and cannabinoid therapies carry more harms than benefits.

Organization (Author, Year)	Country	Guideline	Summary of Recommendations
Scottish Intercollegiate Guideline Network (SIGN, 2019)	United Kingdom	Management of Chronic Pain: A National Clinical Guideline	• Recommends referring patients to a pain management/ self-management program and engage in exercise therapies. • Recommends self-management interventions for treating chronic pain. • Insufficient evidence for whether to recommend for or against clinician advice alone.
National Institute for Health and Care Excellence (NICE, 2021)	United Kingdom	*Chronic Pain (Primary and Secondary) in Over 16s: Assessment of all Chronic Pain and Management of Chronic Primary Pain*	• Recommends exercise programs for managing chronic pain. • Consider ACT or CBT for treating chronic pain. • Note that more research is needed for the following psychological interventions for chronic primary pain: mindfulness, psychodynamic psychotherapy, and relaxation therapy.
Hawk et al., 2020	United States	*Best Practices for Chiropractic Management of Patients with Chronic Musculoskeletal Pain: A Clinical Practice Guideline*	• Recommends addressing moderate and chronic pain through a biopsychosocial framework. • Recommends self-management and nonpharmacological approaches as first-line treatment. • Recommends active interventions as well as combining active and passive interventions (e.g., acupuncture, massage, spinal manipulation).
Kaiser Permanente (2021)	United States	*Non-Specific Back Pain Guideline*	• Emphasizes that the patient is an active participant, with interventions focusing on improving quality of life and functioning. • Recommends reassurance, education, usual activity, low-impact activities, self-care, superficial heat, Better Choices, Better Health workshop, physical therapy, relaxation therapy, yoga, Tai Chi, acupuncture, spinal manipulation, massage, physical medicine and rehabilitation, and psychotherapy (CBT, MBSR). • Recommend against bed rest and traction as well as delaying weight loss as an intervention.
Tennessee Department of Public Health (2020)	United States	*Tennessee Chronic Pain Guidelines*	• Focuses on best practices for assessing chronic nonmalignant pain before initiating opioid treatment. • Best practices for initiating and monitoring opioid therapy for chronic nonmalignant pain and monitoring ongoing opioid therapy. • Review of national and state guidelines for prescribing opioids and provide consensus-based recommendations for initiating opioid therapy.

Strengths and Limitations of the Systematic Reviews

At the outset, the panel was encouraged to identify systematic reviews or meta-analyses that would address the identified scope. To do this, APA staff conducted a search and provided the panel with a set of systematic reviews and meta-analyses published within the last 5 years. Ultimately, the selected systematic reviews included both strengths and limitations.

The panel began by selecting a paper by Skelly et al., (2020) based upon similarities in scope and the high quality of the review. This systematic review was conducted by an evidence-based practice center designated by AHRQ and guided by IOM's (2011b) standards for systematic reviews. Additional strengths included the breadth of the review, risk of bias assessments to determine the quality of individual studies, and a standardized strategy for grading the strength of the evidence. However, this review did not cover all the disorders (neuropathy, TMJ/facial pain, headache), interventions (self-management, occupational therapy, and the combination of noninvasive, nonpharmacological interventions) or outcomes (return to work) that the panel wished to address. Therefore, the panel reviewed additional publications.

A systematic review and meta-analysis by Geraghty et al. (2021) and a systematic review by Williams et al., (2020) were added to the Skelly et al. (2020) systematic review. These publications were reviewed for quality based upon AMSTAR-2 confidence ratings, with an overall confidence rating for Geraghty et al., (2021) as Moderate (more than one noncritical weakness) and for Williams et al. (2020) as High (no or one noncritical weakness). One potential limitation of the systematic review and meta-analysis by Geraghty et al., (2021) was that the definition of self-management was large and may have increased variability across outcomes.

Overall, limitations of all the reviews included heterogeneity that may impact applicability. Specifically, there was variability in how individual studies operationalized chronic pain. There was substantial variability in the number of sessions, length of sessions, duration of treatment, the presence/absence or length of follow-up, and clinician experience across studies. The panel was also limited by the current literature's operationalization of treatment as usual and usual care conditions. The panel also was unable to clarify the exact treatment that was rendered in some cases. For example, treatment labeled as CBT may have been administered by a variety of HCPs using somewhat different paradigms, thus rendering the results difficult to describe within a guideline structure. Additional limitations were that the majority of trial participants were female, and participants tended to be older, which may limit the applicability of recommendations and outcomes for younger, male individuals with chronic pain. However, most patients seeking treatment for chronic pain are female. Further, data presented in the extant literature was insufficient to determine the impact of comorbidities.

There are inherent limitations in using systematic reviews (e.g., Flather et al., 1997; Moore, 2021). From the outset, decisions as to reviews selected for inclusion in guideline development, as well as meta-analyses (selection bias), will greatly influence conclusions regarding the effectiveness of various treatments under consideration. Thus, it is unlikely that the authors of the current guideline would be able to determine whether selection (allegiance) bias, study design, and treatment fidelity affected the results of individual studies, and, accordingly, the results of the systematic reviews on which they relied. Unfortunately, no consensus exists on how to identify or measure all potential sources of bias (Yoder et al., 2019), which is important to acknowledge when reviewing outcomes and interpreting results of the study. Although a review of currently available literature does not provide any discussion of the impact of such various sources of bias, concerns have been addressed in psychotherapy outcomes research, generally (Budd & Hughes, 2009; Falkenström et al., 2013; Leichsenring et al., 2017), and can accordingly have a potential confounding impact on the systematic reviews that were used for the current guideline.

Any high-quality articles that were published after the dates of the literature review for the systematic reviews are not included in our assessment. In the AHRQ review (Skelly et al., 2020), the article search was limited to September 2017 through September 2019; however, this systematic review updated a prior report and thus included a large selection of the relevant literature preceding their current search dates. The Cochrane review (Williams et al., 2020) was also an update of a previous systematic review that had included articles from 2011 forward. The literature search cessation date for the Williams review was April 2020. The review by Geraghty and colleagues (2021) assessed literature from December 2017 through June 2020. It is important to note that most literature from April 2020 forward was not included in the guideline. Significant RCTs of high quality that might affect the recommendations in this guideline could have been published after April 2020 and therefore the panel recommends that the reader considers new research when clinicians develop final treatment recommendations.

Meta-analyses and systematic reviews include numerous criteria (e.g., minimum sample size, outcome criteria used) in determining what studies are appropriate for inclusion and the set of relevant and appropriate studies to incorporate in the analyses. They have their own unique methods for establishing the quality of each study included and the strength of the evidence of each study. There are several limitations inherent in each meta-analysis, thus it is important to acknowledge these when generating recommendations based upon them (Moore et al., 2022, 2023). The evidence is not comprehensive or of sufficient quality to make definitive recommendations about the effectiveness of various nonmedical and nonpharmacological interventions for treating patients with musculoskeletal pain and pain-re-

lated disability. Thus, the panel recommends that clinicians balance the guideline recommendations with their expertise and knowledge of their individual patients and patient preferences.

Perhaps most concerning is the potential for reviews to unwittingly incorporate various types of bias, that include but are not necessarily limited to selection bias, attrition bias, selective outcome reporting, and publication bias (Owens, 2021). Some biases, as well as specific study design features, are difficult to detect in evaluating the results of research, even with careful examination of the individual studies included (or excluded) from systematic reviews. Selection biases pose major difficulties in interpreting the conclusions of systematic reviews. One potential influence on study selection is an investigator's preference for one type of treatment compared to another (i.e., "allegiance bias"). This type of bias may hinder treatment comparators and may have a profound effect on outcomes. For example, if an investigator designed a study to compare a psychological treatment with physical therapy for patients with LBP in which both treatments were provided by psychological therapists, the limited expertise of the psychological therapist in physical therapy might create a bias against the success of the physical treatment. In this example, the investigator allegiance along with limitations in providers' training would be difficult to rule out in evaluating the differential treatment effects.

The individual reviews selected as the basis for the guideline may also include methodological design characteristics that undermine comparator treatments (e.g., lack of comparability of attention provided to groups, and preferences and experience of treatment providers). Yet another confounder may be the failure of investigators to adequately blind treatment providers and to provide sufficient training and supervision to assure the fidelity of the comparator treatments.

Systematic reviews and meta-analyses also require a number of years to perform, prepare, and publish. Thus, they may be dated at the time this guideline was prepared. The panel encourages clinicians to monitor new research for up-to-date and evidence-based treatments and observe that studies are published over many years and some improvements have already been made in more recent studies. New efforts to develop procedures for "live meta-analyses" have been established in which regular updates are developed to build on the original conclusion of meta-analyses and subsequent recommendations based on the analyses (Elliott et al., 2017). These efforts would be a valuable addition to developing future guidelines for the treatment of chronic musculoskeletal pain.

Finally, behavioral treatments as well as physical modalities are often grouped together as consisting of homogeneous sets. Yet there are several different psychological and physical treatments with different conceptual bases and therapeutic components. Thus, categories of treatments are not monolithic and the possibility that investigators and treatment providers are influenced by their allegiance to a specific therapy (e.g., mindfulness vs. CBT, conditioning exercise vs. spinal manipulation) exists. Accordingly, clinicians must be cautious when making treatment decisions based on guidelines that combine behavioral and physical therapies.

Additional Issues Not Addressed Above

The panel would like to provide a description of two terms that are often used interchangeably: multidisciplinary pain management and interdisciplinary pain management (Gatchel et al., 2014). Multidisciplinary pain management is care that includes an array of health care providers, but there is often little coordination of care among those providers. Individual providers pursue separate treatment goals that do not include the input from other disciplines. Interdisciplinary pain management is different from multidisciplinary pain management by including coordination of care into a comprehensive program. This includes frequent communication between health care providers who are all focused on a shared treatment goal and are often collocated within a single facility. The International Association for the Study of Pain task force (n.d.) has stated that interdisciplinary pain management should include physical medicine, psychological services, physical and occupational therapy, as well as referrals for any additional specialty care needed by the patient and not directly offered by the interdisciplinary pain management team.

Most treatment recommendations and guidelines recommend delivering chronic pain treatment as part of a multidisciplinary team (American College of Occupational and Environmental Medicine, 2024; National Institute for Health and Care Excellence, 2021; State of Colorado Division of Worker's Compensation, 2017). Unfortunately, in many health systems, gathering a team of clinicians of the applicable disciplines is challenging. Time and situation seem to preclude the necessary coordination to gain the benefits offered by the ideal multidisciplinary team. Delivering coordinated care is difficult for almost all pain treatments but seems especially difficult for nonpharmacologic treatments that are the focus of this guideline. For example, a common barrier to effective communication is the fragmentation of information, such as treatment notes that are only available to individual providers (George et al., 2021; Pain Management Best Practices Inter-Agency Task Force, 2019). Special restrictions apply to some psychological records, and so behavioral health specialists may operate in a vacuum when they are not part of the same network or health system. Thus, pertinent information for other providers prescribing treatment may not be clear to those members or even be available in developing their treatment approach. Conversely, behavioral health specialists may not fully comprehend the treatment the patient is receiving or may have ideas about other appropriate treatment that the primary providers have not considered. Multidisciplinary teams can help address these coordination challenges.

Self-management is referenced multiple times throughout the guideline. The panel applied the conceptualization proposed by Lorig and Holman (2003) to operationally define this concept as it applies to pain. More specifically, self-management entails patients becoming active participants in their care with the goal of improving quality of life, maximizing function, and minimizing adverse impacts related to their chronic pain condition(s). Specific strategies patients apply in this paradigm include (but are not limited to) problem-solving, decision making, self-advocacy, forming partnerships with the health care system, and developing and working toward short- and long-term goals (Lorig & Holman, 2003). Self-management is not meant to occur exclusively in the absence of formal care; it may also include a health care professional who engages in a shared decision-making process with the patient to develop a treatment plan (Kang et al., 2024).

Needs for Research and Reporting of Clinical Trials

Examination of the studies included in the primary systematic reviews and meta-analyses used in the current guideline reveals several important areas that need to be addressed in future research and in the reporting of important information in publications. A comprehensive analysis and discussion of the many research needs is beyond the scope of this guideline (see Moore et al., 2020, 2023). Thus, we have organized here and summarized in Table 3 the necessary information to improve the strength of the recommendations for nonpharmacological and nonmedical treatments of patients with musculoskeletal pain and pain related disabilities in three sections: Protocol Specification, Methodology, and Evidence Reporting.

TABLE 3

Recommendations Regarding Research Needs and Reporting

Protocol Specification
Improve definitions of what TAU or waitlist control entails.
Improve definitions and more details regarding the components of treatment (e.g., physical therapy, CBT, ACT) as well as dosage (e.g., 6, 12, or more treatment sessions), frequency of treatment (e.g., daily, weekly), and specifics of treatment format (e.g., group, individual, internet delivered).
Include verification methods used to confirm treatment fidelity (e.g., training to follow specific treatment protocol, procedures for monitoring provider adherence).
Improve reporting of the level and expertise of providers/clinicians guiding treatment.
Methodology
Integrate results from efficacy, effectiveness, and implementation trials.
Increase sample size.
Develop research that targets diverse diagnostic groups.
Increase length of follow-up.
Develop methods/Standards to assess patient adherence.
Include sensitivity analyses to evaluate treatment effects.
Conduct retrospective responder analyses to identify the characteristics of patients who benefit from treatments.
Identify treatment responders so that treatment matching to specific patient phenotypes can occur.
Include patient preferences.
Include objective outcome data instead of solely relying on patient-reported outcomes.
Develop research addressing both specific and nonspecific factors of treatment as well as including mediators and moderators that contribute to outcomes.
Promote equity, diversity, and inclusion when developing research methodology.
Evidence Reporting
Include adverse events reporting.
Report and reduce all potential sources of bias (e.g., investigator bias, funding source)
Promote preregistration of clinical trials (e.g., ClinicalTrials.gov, Eudra-CT) and meta-analyses (e.g., PROSPERO, Cochrane, PRISMA guidelines, AMSTAR-2).
Include CONSORT charts.

Protocol Specification

To evaluate the efficacy and effectiveness of any clinical trial, it is important to clearly specify essential details from the protocol of the treatment(s) being evaluated and comparison groups. This includes reporting a number of important details, several of which are outlined below.

If the active treatment is being compared to TAU or a waitlist control, there needs to be a description of what was included under the generic rubric of TAU and waitlist and what treatments, if any, are provided routinely to patients. For example, are there accepted standards for the treatment to which the treatment to be evaluated are to be compared? In a particular study, does TAU and waitlist include active components such as clinician attention, medication, and physical therapy? Will the patients in the active treatment receive these in addition to the components of the treatment under investigation or will they be modified or withheld? These details need to be specified in clinical trials that compare an active treatment of TAU or waitlists.

In relation to specifying the components of treatments, general terms are often used but these treatments may have very different components. For example, the generic term "physical therapy" may incorporate a range of modalities (e.g., type of manipulations) and types of exercise (e.g., aerobic, flexion, extension) and psychological treatments even when more specific, such as CBT and ACT, can include different treatment components (e.g., relaxation, cognitive restructuring, problem solving, distraction). The panel encourages investigators to clarify the nature of comparative treatments to better examine and compare effects (e.g., specific nature/forms/content/targets of physical therapy, psychological treatments, other nonmedical/nonpharmacological treatments).

For nonmedical and nonpharmacological treatments, the dosage (e.g., 6, 12, more treatment sessions), frequency of treatment sessions (e.g., daily, weekly), and details of the treatment format (e.g., group, individual, internet delivered) are required for adequate determination of outcome. Research is needed to supplement clinical outcomes in general but to also establish the necessary and sufficient characteristics required to achieve the optimal outcome with any treatment. This will not be accomplished if the details surrounding the treatment provided are not available.

When providers are asked to follow a particular protocol, it is essential that the investigators include some means of verifying the treatment protocol is being followed and to confirm treatment fidelity (e.g., training to follow specific treatment protocol [not just years of experience and expertise], procedures for monitoring and addressing provider adherence). Often the details of the experience, training, and monitoring of providers are not described in sufficient detail to assure the fidelity of the treatment described and, hence, the conclusions about the benefits of the treatment.

Methodology

The methodology used by investigators in designing and conducting their trials are essential to assist clinicians in their assessment of the validity of the results and for informing their decisions regarding which of the treatments will provide the greatest benefit for their patients.

The current guideline includes recommendations based on carefully controlled randomized clinical trials. These types of trials (efficacy trials) are meant to address the specific question of whether a particular treatment "can work" under carefully specified conditions. This type of study has numerous limitations regarding the second question, which is "Does the treatment work in practice?". These studies are labeled effectiveness ("real-world") trials. Although there are benefits to effectiveness trials, they have their own limitations (e.g., lack of control, absence of placebo treatments). Both types of trials are valuable, and the results can complement one another. Research is needed into the integration of results from both types of trials to assist clinicians in making decisions as to the applicability of the treatments for their patients.

The panel also noted a gap in implementation research. Implementation research builds upon both efficacy and effectiveness research by studying the application of evidence-based interventions within systems of care. Research that focuses on how best to implement research findings into daily practice while addressing real-world issues such as insurance payOrs, patient comorbidities, treatment and provider availability, and treatment adherence would benefit the field.

The majority of studies that served as the basis for this guideline included small sample sizes and a small number of studies evaluating each treatment's efficacy. Increasing both the sample sizes included in clinical trials and the number of trials to replicate results are important areas of research (Moore et al., 1998). This seems critical given the small number of studies and sample sizes included in the diverse comparison that were considered when determining the recommendations in this guideline.

The recommendations in this guideline are based on studies for the treatment of musculoskeletal pain disorders. This is a broad category that varies by location and mechanisms (e.g., osteoarthritis of the knee, neck and back pain, fibromyalgia). This potential heterogeneity of the diagnostic criteria can limit generalization across the diagnoses under the general rubric of musculoskeletal pain. Often the available studies focus on only one of the diagnoses and it may not be appropriate to extrapolate from any specific diagnosis to the entire group. Research is needed to target the specific, diverse diagnostic groups as it is less than desirable to have to extrapolate from results with one diagnostic group to others.

Many of the studies considered in developing this guideline included relatively short follow-up periods of 6 months or less. Thus, it is difficult to confirm the maintenance of any treatment effects obtained and on which to base recom-

mendations. Longer-term follow-up (at least 6 months and preferably one year) would be optimal. However, there is a recognition that this may increase the risk that patients will be lost to follow-up.

Many of the nonmedical and nonpharmacological treatments considered in this guideline require patients to engage in some form of home practice. There need to be methods or standards to assess patient adherence with treatment requirements. Research is needed to establish what criteria are used to determine an adequate "dose" of treatment was received/acceptable for inclusion in making a determination of treatment efficacy.

Since clinical trials often report that significant percentages of those who receive treatment terminate participation prematurely and varying percentages of patients who complete treatment are lost to follow-up, the panel recommends that investigators include sensitivity analyses (e.g., treatment completers, baseline observation carried forward) in evaluating treatment outcomes to verify treatment effects.

Even patients with the same chronic musculoskeletal diagnosis are not homogeneous. Thus, it might be predicted that patients with different physical, psychosocial, behavioral, and contextual characteristics would differ in responses to diverse treatments. Examination of the percentage of patients who obtain positive benefits of treatment is imperative. The panel recommends that trials include large enough samples to permit the performance and reporting of the percentage of patients who achieve statistically significant and clinically meaningful responses. It is important that future research addresses the question of "what treatments are effective for whom?" Retrospective responder analyses would be useful to identify the characteristics of patients who benefit from treatments under investigation. The results of these analyses could then be used to develop and match specific treatments to patients who would be most likely to benefit. If research identified treatment responders, prospective treatment matching to specific patient phenotypes could be conducted. The results would inform clinician decisions regarding treatments to be offered to their patients that are best matched to treatments demonstrated to be most effective for their patients.

It is imperative to acknowledge the differences between statistical and clinical significance. Large samples require smaller changes in outcomes to be statistically significant. Because a large clinical trial reports statistically significant results does inevitably lead to the conclusion that the results are clinically meaningful. Research needs to demonstrate that not only are outcomes statistically significant but that patients view these results as important to them.

It is also critical that researchers identify and address the health disparities that currently exist in racial/ethnic diverse individuals with chronic musculoskeletal pain. The National Institute on Aging has developed a framework that can guide researchers in developing research agendas aimed at addressing chronic musculoskeletal pain in underserved populations (Patel et al., 2022).

The panel acknowledged a need for patient engagement in clinical trials. There is a need for patient input in areas such as adherence to treatment and dropout as well. Study participants are more likely to remain adherent and stay involved with a study if it is personally meaningful to them. Inclusion of community members can help develop recruitment strategies, design of trials, selection of meaningful outcomes, and dissemination of results (Holzer et al., 2022).

Most clinical trials adopt outcomes that investigators believe are important as their primary criteria to establish the benefits of treatments. There has been growing attention to what outcomes are meaningful to the *patients* (e.g., Turk et al., 2008). Research is needed to determine the outcomes that patients will accept as meaningful to them (e.g., function rather than pain intensity, and inclusion of quality-of-life measures). These outcomes then need to be included in clinical trials.

The primary outcomes in most clinical trials for musculoskeletal pain are based on patient-reported outcomes. Although self-reporting is important, it can be influenced by a number of personal and contextual factors. Research is needed to develop methods to assess outcomes that can supplement self-reports such as objective outcome data (e.g., actigraphy, behavioral observation, quantitative sensory testing (QST, Georgopoulos et al., 2019), conditioned pain modulation (CPM, Imai et al., 2016), brain imaging (Ng et al., 2018). The panel recommends that the results of such research be integrated with results of self-report measures to provide more comprehensive analyses of treatment outcomes.

Psychosocial treatments are often based on differing conceptualizations of the essential components of treatments and a number of nonspecific factors incorporated in treatment protocols (e.g., therapeutic alliance, patient expectations, motivation) (Thorn & Burns, 2011). Research is needed to verify the additive (synergistic) contributions of the specific and nonspecific treatment components to the outcomes. This would be helpful to identify the necessary and sufficient components of treatment. Further, research is needed to examine mediators and moderators that contribute to the outcomes observed.

When developing research methodology, efforts are needed to promote equity, diversity, and inclusion in research studies. Many of the studies that were included in the three systematic reviews that served as the underlying evidence for the APA guideline did not represent the entire population. The panel also encourages researchers to broaden research participation to ensure fair representation in clinical trials.

Evidence Reporting

The reporting of the results of clinical trials to evaluate the efficacy and effectiveness of specific treatments is essential to assist clinicians' interpretation and decision making regard-

ing the use of any treatment with their patients. Thus, it is important the investigators are scrupulous in the reporting of the outcomes of clinical trials performed and that investigators adhere to standards to ensure the accurate reporting of the results of their research.

Adverse events are common in pharmaceutical and medical treatments and are reported in clinical trials. Adverse events are less commonly included in clinical trials of nonpharmacological and nonmedical treatments as evident in the studies included in the development of this clinical guideline. However, there may be adverse events associated with any clinical intervention. For example, physical therapy could increase levels of pain or even injuries (e.g., being more active increase the likelihood of falls and subsequent pain), and psychosocial treatments might increase emotional distress (e.g., identifying interpersonal difficulties). It is important that investigators report adverse events in all clinical trials, including reporting when none occurred. For if they are not reported it is not possible to determine whether none occurred or whether they were simply not recorded in the study reported.

There are several potential sources of bias in the conduct and reporting of clinical trials (e.g., investigator bias, selective recruiting, funding source). Clinical investigators as well as treatment providers have different allegiances to several types of treatment and investigators and providers may have subtle biases regarding the desire to see their preferred treatment demonstrate positive effects compared to alternative treatments. It is important that such potential biases be acknowledged. Additionally, funding sources may consciously or unconsciously steer the direction of trial designs and reporting of results. For example, research suggests that RCTs with the improper or unclear influence of funders seemed to have a larger effect size than those with the clear impact of industrial funding (Fuentes et al., 2020). The panel recommends that investigators report any potential, actual or perceived bias by the providers of treatments to inform clinicians of these contributing factors that are important when evaluating the validity of results.

The bias towards publishing studies that confirmed a preexisting hypothesis is well known and is being addressed by the requirement to preregister clinical trials in governmental registries (e.g., ClinicalTrials.gov, Eudra-CT). Meta-analyses are formal methods to combine results from clinical trials and serve as the basis for the current guideline. This guideline previously described some limitations to meta-analyses. To reduce potential biases in interpretation of meta-analyses, the panel encourages researchers to pre-register their review in appropriate venues and databases, such as the International Prospective Register of Systematic Reviews (PROSPERO; Stewart et al., 2012). The Cochrane initiative has developed standard procedures for combining data across studies and publishes summaries of evidence for or against pain management interventions (Higgins et al., 2023). Other rigorous guidelines have been developed to improve the quality of meta-analyses, for example Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and AMSTAR-2 (Shea et al., 2017).

All clinical trials involve the recruitment of patients to participate. For clinicians to interpret the generalizability of the results of clinical trials, they need to understand the sample of patients included. The inclusion and exclusion criteria for patients are reported in trials, however, the participant flow also needs to be present. To assist in the review, standards have been developed to understand patient inclusion (CONSORT; Boutron et al., 2008). To assist clinicians in their review of clinical trials, the panel recommends that investigators include CONSORT flow diagrams, including the number of potential participants in trials who were screened on telephone and how many participants were invited to participate, accepted, and declined. (Reasons for declining would also be useful). The panel recommends that CONSORT flow diagrams be included in all clinical trials going forward as details of recruitment, treatment completers, and follow-up numbers have not always been provided in published reports.

Conclusion

Overall, the panel found both strengths and limitations in the underlying evidence base. Thus, the panel makes recommendations pertaining to efficacy and comparative effectiveness of treatments following the IOM (2011a) criteria for rigorous guideline development but recognizes limits exist to the scope of its recommendations. The panel encourages the field to address research issues related to protocol specification, methodology, and evidence reporting. Moreover, the panel encourages clinicians to attend to issues of informed consent, the role of provider and patient factors in treatment for chronic musculoskeletal pain, barriers to treatment, treatment engagement, professional competence, monitoring the response to treatment, and cultural humility and diversity competence as outlined in the panel's implementation considerations. The panel also emphasizes that insufficient evidence does not mean that a treatment does not work; rather, there is not enough research for the panel to recommend for or against a treatment. Therefore, the guideline is *not* to be used to determine coverage for treatments by third-party payors. Rather, the guideline is one of several tools to consider in developing an evidence-based practice that seeks to "do no harm" to patients. Although evidence was largely equivocal for most treatment options in the literature search, the panel agreed that effective treatment approaches are likely to be highly dependent on a combination of patient level factors and variables related to patient-provider interactions. These conclusions reinforce the importance of individualized, person-centered care.

Altogether, the APA guideline on nonpharmacological treatments for chronic musculoskeletal pain in adults makes a significant contribution to the treatment of chronic pain and adds to current knowledge with its focus on nonpharmacological treatments for chronic musculoskeletal pain, and its organization into first- and second-line treatments in the short, intermediate, and long terms, and recency. Further, the panel developed this guideline following best practices for developing trustworthy guidelines in accordance with IOM (2011a) standards. This guideline stems from APA's policy on evidence-based practice that is grounded on the three domains, which both the NAM (formerly IOM) and APA (APA Presidential Task Force on Evidence-Based Practice, 2006; APA, 2021) have noted, that integrate practitioner expertise, best available research, and patients' values, culture, and preferences. The panel believes the current APA guideline will serve as a helpful evidence-based tool that, when applicable in professional and clinical situations in the professional judgment of the clinician, can help alleviate suffering among adults with chronic musculoskeletal pain and their loved ones.

Conflicts of Interest

Before final appointment to the panel, candidates completed a conflict of interest (COI) form that the advisory steering committee or APA staff then reviewed to ensure there were no identified conflicts that would prohibit participation, with the understanding that some "adversarial conflict" representing different points of views was to be expected and encouraged in this process. While intellectual affiliations were expected, no panel members had been singularly identified with particular approaches to intervention nor had significant known financial conflicts. Once the panel was formed, all panel members completed an educational module on conflicts of interest that underscored the importance of identifying and managing any potential conflicts, both financial and intellectual. The APA conflicts of interest policy and disclosure form are included in Appendix C.

All panel members and staff affiliated with development of the chronic pain clinical practice guideline updated their conflicts of interest form on an annual basis and were asked to provide more timely updates if they perceived changes in their disclosures to be relevant to the development of the guideline. All were asked to disclose all potential conflicts of interest with the understanding that these would be reviewed and evaluated and a decision would be made regarding how to manage identified conflicts. Conflicts of interest included not only possibilities for financial or professional gain but also strong intellectual viewpoints that might then limit someone from objectively reviewing the evidence. Emphasis was placed on disclosing all potential conflicts and allowing the staff and chair (or other appropriate individual in the case of the chair) to review the disclosures and determine whether such information could reasonably be construed as a source of possible influence on the guideline development process. Furthermore, upon first joining the initiative and at the initial meeting, panel members were asked to verbalize their conflicts, so all present would be familiar with the diversity of perspectives and range of possible influences. This practice continued at subsequent meetings.

All panel members and staff were required to disclose their intellectual interests, financial and professional interests, interests related to APA, and other relevant interests. They were also required to disclose interests of family members, defined as "a spouse, domestic partner, parent, child, or other relative with whom [they] have a comparably close tie." Authors were asked to disclose the following potential conflicts of interest: scientific/ educational/ professional communications, communications to a general audience, roles at APA or other organizations, relevant honoraria, endorsements, research funding or royalties, payment for services or training, and serving as expert witnesses. None of the reported potential conflicts of interest precluded a nominated candidate from serving on the guideline development panel. Excluding all guideline development panel candidates with any potential conflicts of interest risks excluding the level and type of expertise needed to fully evaluate treatment benefits and risks. The most knowledgeable individuals can be conflicted because of expertise in their areas of interest, and they may possess both financial and intellectual conflicts of interest from participating in research and serving as consultants to industry. However, these experts may possess unique insight into appropriate health care needs and recommendations.

There is growing recognition that financial relations to the pharmaceutical industry threaten the integrity of research and of clinical practice guidelines. However, the issue is still contentious, and exclusion of all potential guideline development panel members with such conflicts may itself be seen as biased against pharmacological treatments or particular medical specialties. Similarly, experts with respect to psychotherapy tend to have intellectual passions for specific types of psychosocial interventions that also constitute potential conflicts. Yet, such individuals may be difficult to replace because of their unique insights, as well as their status in the eyes of key stakeholders (IOM, 2011b). Hence, rather than exclude topic experts and risk minimizing expertise, APA follows the principle of adversarial collaboration in which competing interests are balanced on panels and committees, rather than avoided. This approach is also used by other leading developer of clinical practice guidelines, such as the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines (American College of Cardiology Foundation & American Heart Association, 2010; IOM, 2011b).

Conflict of interest forms for all authors are available by request for public review.

Author Disclosures

The Clinical Practice Guideline Development Panel reported the following disclosures during the development and approval of this guideline. The following points, drawn from panelists' disclosures, were among the information noted in assessing and managing potential financial and intellectual conflicts of interest.

Ravi Prasad, PhD (**chair**), is a licensed clinical psychologist, clinical professor, and director of behavioral health in the department of anesthesiology and pain medicine at the University of California, Davis School of Medicine. Dr. Prasad is a member at large for APA's Division 38 (Health Psychology) Board of Directors, an executive committee member for APA's Board of Professional Affairs and is a representative of the Interdivisional Healthcare Committee of APA Division 17 (Counseling Psychology). Dr. Prasad is also a member of the Pacific Spine and Pain Society Education Committee and serves as an Advisory Board Member for Menda Health, an evidence-based, online pain reprocessing treatment program for pain. Dr. Prasad also serves as a consultant for the medical product developer, Nitto, Inc. Dr. Prasad has received honoraria for multiple presentations on the etiology and management of chronic pain.

Kathryn L. Mueller, MD, MPH, FACOEM (**vice chair**), is a professor at the Colorado School of Public Health and former medical director for the Division of Workers Compensation in Colorado. Dr. Mueller also works for the Worker Compensation Research Institute and, within the last year, has examined factors that influence the prescribing of extended physical therapy in workers' compensation. Dr. Mueller serves on several Councils for the American College of Occupational and Environmental Medicine (ACOEM), has served on the LBP committee for the ACOEM guidelines, and currently serves as chair for the Colorado Medical Societies Committee on Workers' Compensation.

Daniel Bruns, PsyD, FAPA, is a pain psychologist and scientist-practitioner in full-time private practice in Greeley, Colorado. Dr. Bruns helped to develop APA's virtual workshop and APA's first official pain curriculum on the role of psychology in addressing pain and related opioid dependence. Dr. Bruns also helped to develop the North American Spine Society's Psychologically Informed Practice curriculum and has served on 17 medical treatment guidelines for pain/injury. Dr. Bruns receives honoraria for his presentations on spinal cord stimulators and receives royalties for psychological assessment instruments that assess patients with chronic pain. Dr Bruns currently serves as a consultant for the Substance Abuse and Mental Health Services Administration grant *Opioid Response Network* and is a member of the ACOEM Chronic Pain Guideline Panel, the Colorado Chronic Pain Guideline Advisory Panel and the American Medical Association's advisory panel guiding the evaluation of permanent impairment. Dr. Bruns chairs APA's Division 38 (Health Psychology) Pain special interest group and Functional Assessment Task Force and serves as vice chair for the Interdivisional Healthcare Committee.

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Penney Cowan is the cofounder and board member of the World Patients Alliance and serves as an advisory board member for a project on acute LBP guidelines. Ms. Cowan is also a founder and former CEO of the American Chronic Pain Association, a nonprofit organization that offers peer support and education in pain management skills to people with pain, their family and friends, and health care professionals.

Steven Z. George, PT, PhD, FAPTA, is a professor and director of musculoskeletal research at the Duke Clinical Research Institute and is vice chair of research in the department of orthopaedic surgery at Duke University School of Medicine. Dr. George was lead author for the Orthopaedic Academy of the American Physical Therapy Association's (APTA) clinical practice guideline for LBP (George et al., 2021) and has received honoraria for keynote speeches and plenary presentations at academic organizations. Dr. George also serves as editor-in-chief for the APTA's flagship journal *Physical Therapy & Rehabilitation*. In the past year, Dr. George received funding from the National Institutes of Health for clinical trials related to testing the efficacy or effectiveness of treatments for chronic LBP.

Geraldine Martorella, PhD, RN, is a professor in the College of Nursing at Florida State University. Dr. Martorella has published and presented on several papers related to nonpharmacological approaches for chronic musculoskeletal pain and

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Cindy A. McGeary, PhD, ABPP, is director of the clinical psychology internship program and associate professor in the department of psychiatry and behavioral sciences at the University of Texas Health Science Center in San Antonio. Dr. McGeary is coprincipal investigator on several federal- and state-funded research programs that examine biopsychosocial interventions for chronic musculoskeletal pain in group or couple formats within a cognitive behavioral therapy and functional restoration lens. Dr. McGeary is also a part of a research team on a Department of Defense (DoD) funded study examining the psychological treatment of chronic pain within the DoD's primary care setting and is also part of a team on a CPMRP funded study that is evaluating functional restoration as a treatment for chronic pain. Dr. McGeary serves as an APA site visitor for APA's Commission on Accreditation by reviewing psychology internship programs.

Joseph T. Norris, Jr., Lieutenant Colonel, USAF (Retired) is an active chronic pain advocate. He participates in multiple clinical trials as a Patient Advisor and is active in the areas of Patient Engagement and Patient Empowerment. He routinely authors articles for general distribution on his personal experiences from living with chronic pain. As a peer-led support group facilitator for several groups, he belongs to several advocacy associations, such as the American Chronic Pain Association, the U.S. Pain Foundation, and the Patients Rising Senate.

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Developer

American Psychological Association-Guideline Development Panel for the Treatment of Chronic Musculoskeletal Pain in Adults. The Chronic Pain Guideline Development Panel is a multidisciplinary panel of experts.

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APPENDIX A

Descriptions of Treatments

Derived From Research Included in the Systematic Reviews / Meta-Analyses

Intervention		Description of Treatment
Psychological	Acceptance and Commitment Therapy	A third-wave cognitive behavior therapy that teaches patients how to sit with their thoughts and feelings, notice them from a third point of view, and accept them as they are without judgment while aligning with their values.
Psychological	Behavioral Therapy	Seeks to identify and help change potentially self-destructive or unhealthy behaviors and functions on the idea that all behaviors are learned and that unhealthy behaviors can be changed. The focus of treatment is often on current problems and how to change them.
Psychological	Biofeedback	A feedback loop intervention where patients are taught through psychological and physiological monitoring machines such as EEGs, ECGs, EKGs how to modify their bodily sensations.
Psychological	Cognitive Behavioral Therapy (CBT)	Uses behavioral and cognitive strategies, particularly exposure, cognitive restructuring, changes in behavior, and development of coping skills, to address learned and conditioned behaviors, thoughts and emotional and psychophysiological reactions.
Psychological	Computerized CBT	Using a computer or the Internet to provide CBT.
Psychological	Motivational Interviewing	A collaborative approach where the therapist assists the patient in identifying the behaviors they want to change and problem-solve the barriers behind making these behavioral changes.
Psychological	Operant Therapy	A cognitive behavioral strategy where behavior can be modified based on rewards and punishments.
Psychological	Pain Coping Skills Training	A training that combines CBT and motivational interviewing principles that teaches patients how to identify and modify maladaptive thinking patterns about pain and how to apply these principles in their everyday lives.

Intervention		Description of Treatment
Psychological	Psychoeducation	A psychological intervention that educates patients about the cause and management of chronic pain.
Psychological	Relaxation Training / Progressive Muscle Relaxation	Individual learns how to reduce external distractions and concentrate on specific thoughts, feelings, or images.
Pharmacological	Acetaminophen	An over-the-counter or prescribed medication used to alleviate chronic pain.
Pharmacological	Nonsteroidal Anti-Inflammatory Drug (NSAID)	A class of medications used to alleviate chronic pain. Types of NSAIDs include ibuprofen, naproxen, diclofenac, celecoxib, mefenamic acid, etoricoxib, indomethacin, and low-dose aspirin.
Physical Exercise [Muscle Performance]	Resistance Training (strength, power, or endurance exercises)	Involves a variety of physical exercises with the goal being to strengthen muscles and improve flexibility.
Physical Exercise [Muscle Performance]	Sling Exercise	Involves using suspension devices such as ropes or slings to strengthen the entire body.
Physical Exercise [Muscle Performance]	Aquatic Therapy/Exercise	Physical exercises that are performed in the water.
Physical Exercise [Muscle Performance]	Musculoskeletal Rehabilitation	A variety of treatments employed by multidisciplinary specialists to rehabilitate and improve muscle function.
Physical Exercise [Muscle Performance]	Pilates	A physical exercise technique that involves controlling muscle stretches and breathing exercises.
Physical Exercise [Neuromuscular Re-Education]	Motor Control Exercises (MCE)	A physical exercise technique where patients use their muscles through completing simple tasks.
Physical Exercise [Neuromuscular Re-Education]	Trunk Coordination / Trunk Strengthening	A physical exercise that strengthens and conditions stomach muscles.
Physical Exercise [Neuromuscular Re-Education]	Stabilization Exercises	A type of exercise with the goal of strengthening the core muscles.
Physical Exercise [Neuromuscular Re-Education]	Posture Training	A type of training that improves how the patient sits, walks, and stands that will then reduce pain.
Physical Exercise [Mobility, Flexibility]	McKenzie/Directional Preference	"A biopsychosocial system of musculoskeletal care emphasizing patient empowerment and self-treatment" (The McKenzie Institute International, n.d.).
Physical Exercise [Mobility, Flexibility]	Stretching	A type of physical exercise where the muscles are elongated in order to improve flexibility and coordination.
Physical Exercise [Mobility, Flexibility]	Lumbar Flexion Exercises	A type of physical exercise that improves flexibility and strengthens muscles in the lower back.
Physical Exercise [Mobility, Flexibility]	Other Mobility or Flexibility Exercises	Other exercises not noted above.
Physical Exercise [Cardiovascular/ Aerobic]	Cardiovascular Training	A type of training that requires the use of the heart, lungs, and blood vessels.
Physical Exercise [Cardiovascular/ Aerobic]	Aerobic Training	A type of training that requires the use of oxygen.

Intervention		Description of Treatment
Physical Exercise [Cardiovascular/ Aerobic]	Walking	"to move along on foot, advance by steps" (Merriam-Webster, 2024)
Physical Exercise [Cardiovascular/ Aerobic]	Aquatic Therapy / Exercise (aerobic-focused)	Performance of aerobic exercises in the water.
Physical Exercise [Combined Exercise]	Combined Exercise	Intervention combining exercises from two or more of the above categories.
Physical Modalities	Low-Level Laser Therapy	"A non-invasive light source treatment that generates a single wavelength of light" (Hampton et al., n.d.).
Manual Therapies	Massage	A type of manual therapy that involves a licensed therapist rubbing the muscle to reduce pain and improve flexibility.
Manual Therapies	Spinal Manipulation	A type of manual therapy employed by Chiropractors or Doctor of Osteopathic Medicine (DO) that manipulates a specific part of the body to reduce pain and improve flexibility.
Mind-Body Practices	Alexander Technique	A type of therapy that involves teaching patients how to be aware of their current posture and ways to improve their posture to reduce pain.
Mind-Body Practices	Basic Body Awareness Therapy	A type of physiotherapy where it trains patients to increase their awareness of their body sensations while engaging in movement.
Mind-Body Practices	Qigong	Pronounced "chi-gong," it is a mind-body practice with roots in Eastern medicine that involves improving body posture, breathing, and meditative exercises.
Mind-Body Practices	Tai Chi	A form of exercise where patients form a posture and focus and meditate on the specific posture.
Mind-Body Practices	Yoga	A system of physical postures, breathing techniques, and sometimes meditation designed to promote physical and emotional well-being.
Mindfulness Practices	Mindfulness-Based Stress Reduction (MBSR)	An 8-week group program where patients are trained with a variety of mindfulness and meditation skills with the goal of improving emotion regulation.
Complementary/Integrative Treatment	Acupuncture	A technique where practitioners apply needles to certain areas of the patients' body in order to relieve pain.
Complementary/Integrative Treatment	Multicomponent Self-Management Interventions	A treatment model that integrates multiple physical, psychological, educative, and occupational exercises with one of the goals being improving self-efficacy in being able to manage pain.
Complimentary/Integrative Treatment	Multidisciplinary Rehabilitation	A rehabilitative approach that involves multiple specialties (psychological, physical therapy, medicine, nursing, social work, occupational therapy) in treating and managing chronic pain.

APPENDIX B

Definition of Key Terms

Advisory Steering Committee (ASC)
The Advisory Steering Committee is a group of distinguished psychologists appointed by the APA Board of Directors (BOD) to oversee APA's CPG development process. The ASC selects which nominated topics will be considered for guidelines and assembles the panels who write the guidelines, but they are not directly involved in conducting SRs, nor in writing CPGs. In addition, while the ASC reports to the BOD, the ASC operates autonomously from APA governance to prevent real or perceived COIs.

Agency for Healthcare Research and Quality (AHRQ)
An agency within the U.S. Department of Health and Human Services, AHRQ supports research that helps people make more informed decisions and improves the quality of health care services. AHRQ's mission is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans, with the following focus areas: comparing the effectiveness of treatments; quality improvement and patient safety; health information technology; prevention and care management; and health care value. AHRQ develops systematic reviews on topics of greatest public health impact. Topic nomination is an open process through AHRQ's Effective Healthcare Program; APA uses this as one mechanism to support SRs for CPG development.

AMSTAR-2 (A MeaSurement Tool to Assess Reviews-Version 2)
A tool designed to systematically assess the quality of the methods used to conduct systematic reviews. Further information about AMSTAR-2 can be found at: https://www.bmj.com/content/358/bmj.j4008)

Applicability
Consistent with the aim of comparative effectiveness research, that is, to help consumers, clinicians, purchasers, and policy makers to make informed decisions that will improve health care at both the individual and population levels. Applicability is analogous to external validity or generalizability (IOM, 2011a).

Benefit
A positive or valued outcome of an action or event (IOM, 2011a).

Bias
A systematic deviation or process that favors one outcome over others (Gluud, 2006). Bias may lead to under- or overestimation of treatment effects. It is impractical and most likely impossible to quantify every potential source of bias that may influence an individual study (Chavalarias & Ioannidis, 2010); however, a number of specific methodological flaws or limitations in research design, implementation, analysis, and evaluation often produce biased outcomes.

Cochrane
Founded in 1993, Cochrane is an international nonprofit organization whose mission is "to produce trusted synthesized evidence, make it accessible to all, and advocate for its use." Cochrane meets its mission in part by not accepting commercial or financial interests in the production and dissemination of systematic reviews and training manuals. Its manuals and systematic reviews of the treatment for particular health conditions are provided for free to researchers, health care professionals, policy makers, and the general public. Additional information about Cochrane can be found at https://www.cochrane.org/

Comparative effectiveness research (CER)
The generation and synthesis of evidence that compares the benefits and harms of alternative methods to prevent, diagnose, treat, and monitor a clinical condition or to improve the delivery of care. The purpose of CER is to help consumers, clinicians, purchasers, and policy makers to make informed decisions that will improve health care at both the individual and population levels. Also referred to as clinical effectiveness research (IOM, 2011a).

Confidence interval (CI)
A CI is a range around an estimate that conveys how precise the estimate is; for example, an estimate of the risk of an event occurring or an estimate such as a risk ratio that compares the risk with and without an intervention. The CI is a guide to how sure we can be about the quantity we are interested in. The narrower the range between the two numbers, the more confident we can be about what the true value is; the wider the range, the less sure we can be. The width of the CI reflects the extent to which chance may be responsible for the observed estimate (with a wider interval reflecting more chance). 95% CI means that we can be 95 percent confident that the true size of effect is between the lower and upper confidence limit. Conversely, there is a 5% chance that the true effect is outside of this range (Treweek et al., 2013).

Delphi (Delphi method)
A structured method in which a panel of experts answers questionnaires iteratively over a few rounds. Anonymous summaries of responses are provided after each round to allow participants to revise responses and converge on answers.

Effectiveness
The impact of an intervention compared to active treatment.

Efficacy
The impact of an intervention compared to an inactive control.

Estimate of effect
The observed relationship between an intervention and an outcome expressed as, for example, a number needed to treat to benefit, odds ratio, risk difference, risk ratio, standardized mean difference, or weighted mean difference.

Evidence
Information on which a decision or guidance is based. Evidence is obtained from a range of sources, including randomized controlled trials, observational studies, and expert opinion of clinical professionals or patients (IOM, 2011b).

Functional impairment
Limitations to carry out certain functions related to the social and occupational spheres of life due to physical or mental illness.

GRADE (GRADE collaboration and Framework)
The Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group, which began in the year 2000, is an international collaboration of scholars with an interest in addressing the shortcomings of present grading systems for CPGs in health care. The working group has developed a sensible and transparent framework for grading quality of evidence and strength of recommendations, typically referred to as "GRADE" (or the GRADE system). Many international organizations provided input into the development of the approach and have started using it. (For further information, see http://www.gradeworkinggroup.org.)

Guideline Development Panel (GDP)
A multidisciplinary panel assembled for the purpose of developing a specific CPG. GDPs are tasked with generating treatment recommendations from systematic reviews and drafting the content of the CPGs. These activities take place independently from APA governance/staff, the ASC, and Systematic Review Teams, who play no part in developing the CPG recommendations. There is some interaction between the SRT and GDP to ensure that the systematic review will meet the needs of the CPG developers; yet the nature of the interaction is transparent and circumscribed to maintain the objectivity and validity of both the systematic review and the CPG.

Harm
A hurtful or adverse outcome of an action or event, or with regard to CPGs, a treatment or health care decision/recommendation, whether temporary or permanent (IOM, 2011b).

Institute of Medicine (IOM, now National Academy of Medicine)
A private, nonprofit institution that provides objective, timely, authoritative information and advice concerning health and science policy to the government, the corporate sector, the professions, and the public under a congressional charter.

Meta-analysis.
The use of quantitative statistical methods in a systematic review to integrate the results of included studies.

Neuropathic Pain
A type of pain that may be associated with nerve damage (Fitzcharles et al., 2021).

Nociceptive Pain
A type of pain that may be associated with overstimulation of the sensory neurons (Fitzcharles et al., 2021).

Nociplastic Pain
A type of pain that is widespread and not due to tissue or nerve damage (Fitzcharles et al., 2021).

Outcome
A change resulting from an intervention. In evaluations, a potential consequence of an intervention that is measured after the intervention has been implemented and is used to assess the potential beneficial and harmful effects of the intervention. **Critical outcomes** are the outcomes of greatest importance for answering key questions in systematic reviews. **Health outcomes**, also referred to as **Patient-Centered outcomes**, are clinical outcomes that affect how patients feel, live or survive, such as quality of life, rate of survival, and patient satisfaction (Boyd et al., 2012).

Patient-centeredness.
Respect for and responsiveness to individual patient preferences, needs, and values; helps ensure that patient values and circumstances guide clinical decisions (IOM. 2011a).

PICOTS (questions)
Systematic reviews seek to answer clearly formulated key questions that will simplify decision making about real-world practices, and thereby inform CPG recommendations. These key questions are developed using the PICOTS framework, an acronym denoting the following components that should

be specified in each key question: Patient populations (P), Interventions (I), Comparison conditions (C), Outcomes (O), Timing or timeframe (T), and Settings (S) (Samson & Schoelles, 2012). For this reason, the key questions in systematic reviews are frequently referred to as *PICOTS* (or *PICOTS questions)*. *Timing* and *Settings* are newer additions to the framework; hence, key questions may also be called PICOS (or PICO questions) by some investigators.

Publication bias
A bias caused by only a subset of all the relevant data being available. The publication of research can depend on the nature and direction of the study results. Studies in which an intervention is not found to be effective are sometimes not published. Because of this, systematic reviews that fail to include unpublished studies may overestimate the true effect of an intervention. In addition, a published report might present a biased set of results (e.g., only outcomes or subgroups where a statistically significant difference was found).

Quality of evidence
The extent to which one can be confident that the estimates of an intervention's effectiveness are adequate to support a particular decision or recommendation (IOM, 2011b; Schünemann et al., 2011). AHRQ uses "strength of evidence" (SOE) to refer to the same basic concept.

Randomized controlled trial (RCT)
An experiment in which two or more interventions, often including a control intervention or no intervention, are compared by randomly allocating participants to the interventions. The term 'trial' is sometimes used to refer to randomized controlled trials (RCTs); however, the term may also be used to refer to quasirandomized trials (which do not randomly assign participants to groups).

Relative Effects
A quantitative measure for evaluating harms and benefits of treatment, expressed as the ratio of two indicators of the frequency of the outcome. A *risk ratio* (RR) is the ratio between the risk (incidence) of the outcome event in the intervention group and the risk in the control group. For example, if the risk of the outcome event in the intervention group is 5% (5 per 100) and the risk in the control group is 20% (10 per 100), the RR is .05 / .20 = .25. If the RR is less than 1, the risk of the outcome event in the intervention group is less than the control group. If the RR is equal to 1, the risk in the two groups is equal. If the RR is greater than 1, the intervention increases the risk of the outcome compared to the control group.

An odds ratio (OR) is also a measure of relative effects, in this case, the odds (not risk) in the intervention group compared to the odds (not risk) in the control group. An odds is a mathematical formula for the probability of an event happening divided by the probability of that event not happening or, mathematically: odds = p / (1-p). Thus, if the risk in the intervention group is 5% (i.e., .05), then the odds in the intervention group is .05 / .95 = .05 (with rounding). If the risk in the control group is .20, then the odds in the control group is .20 / .80 = .25. The odds ratio is then .05 / .25 = .20. Odds ratios can be interpreted similarly to risk ratios. However, when the risk of the outcome event is high, the odds ratio will be different from the risk ratio.

Risk of bias
The extent to which flaws in the design and execution of a collection of studies could bias the estimate of effect for each outcome under study (IOM, 2011b).

Strength of Evidence
The extent to which one can be confident that the estimates of an intervention's effectiveness are adequate to support a particular decision or recommendation (IOM, 2011b; Schünemann et al., 2011). GRADE uses "quality of evidence" to refer to the same basic concept.

Strength of Recommendation
The strength of a recommendation reflects the extent to which one can be confident that the desirable outcomes of a treatment alternative outweigh the undesirable outcomes, across the range of patients to whom the recommendations apply (IOM, 2011b; Schünemann et al., 2011).

Study Quality
For an individual study, study quality refers to all aspects of a study's design and execution and the extent to which bias is avoided or minimized. A related concept is internal validity; that is, the degree to which the results of a study are likely to be true and free of bias (IOM, 2011b).

Systematic Review (SR)
A rigorous approach to synthesizing data from research studies on the benefits, harms and effectiveness of alternative treatment options that pertain to a particular clinical population (IOM, 2011b). Systematic reviews use prespecified criteria for screening, selecting, appraising, grading, and synthesizing outcomes, from a body of research studies, to answer specific clinical questions in areas of uncertainty. SRs seek to minimize bias by using explicit, standardized procedures (Cumpston et al., 2023). The use of standardized criteria enhances the reliability of the findings and confidence in the conclusions about the relative advantages of alternate treatment approaches (IOM, 2011a).

Transparency
Methods are explicitly defined, consistently applied, and available for public review so that observers can readily link judgments, decisions, or actions to the data on which they are

based. Allows users to assess the strengths and weaknesses of the systematic review or CPG (IOM, 2011a).

Treatment Recommendation

In the context of CPGs, treatment recommendations are statements that propose a course of action with respect to a specific health care service, test, psychotherapy or pharmacotherapy etc., or procedure. Well-constructed recommendations specify what should be offered or provided to patients, as well as under what specific conditions the recommendation applies (Rosenfeld & Shiffman, 2009; Shiffman, 2009). In addition, the IOM (2011b) specifies that CPG recommendations should include alternative treatment options.

APPENDIX C

APA Declarations / Conflicts of Interest Form

Clinical Practice Guideline Initiative
CONFLICT OF INTEREST POLICY
AND
DECLARATION OF INTERESTS

_____
Year

Covered Individual:

Name: _____

Please indicate your role in the initiative:

____ Advisory Steering Committee (ASC) Member

____ Guideline Development Panel (GDP) Member

» *If GDP Member, please name the topic of the panel:* _____

____Guideline Update Panel (GUP) Member

» *If GUP Member, please name the topic of the panel:* _____

____Consultant

____APA Staff

Instructions:
Please read the APA Conflict of Interest Policy and complete the Declaration of Interests form and sign the statement at the end. *(ASC Members: Please also read supplementary instructions.)*

Conflict of Interest Policy

It is the aim of the American Psychological Association ("APA") to transact all its business, including the APA clinical practice guideline initiative, lawfully and impartially. In some situations, the relationship of a Covered Individual (as defined below) with a third party, financial or otherwise, could reasonably be construed to create a conflict between the interests of APA and the interests of the Covered Individual.

Covered Individuals are required to disclose to APA any actual, potential, or perceived conflict of interest ("COI") with APA or with their role in the clinical practice guideline initiative, including conflicts from the past 12 months and expected conflicts in the upcoming 12 months. A COI may be of a financial, intellectual, or other nature, as defined below. APA requires Covered Individuals to disclose COIs prior to official appointment to a committee/panel or as a consultant, as well as at the time points noted below. The existence of COIs will not necessarily preclude participation in the guideline initiative, although it may require limiting a Covered Individual's role. APA staff involved in the initiative may also be asked by their supervisors to disclose COIs, following the same policy as for Covered Individuals.

This policy is designed to promote transparency, to protect the integrity of the guideline initiative, and to provide a mechanism to help protect Covered Individuals and APA from legal concerns associated with conflicts of interest.

Covered Individuals: This policy applies to members of the Advisory Steering Committee and the Guideline Development Panels of the APA clinical practice guideline initiative and to consultants who are formally engaged by APA for work on the initiative.

Term: Covered Individuals shall be bound by this conflict-of-interest policy during the official term of their position on the committee/panel or as a consultant.

Definition of COI: A 2011 report from the Institute of Medicine ([IOM] now called the National Academy of Medicine) includes the following definition of COI: "a divergence between an individual's private interests and his or her professional obligations such that an independent observer might reasonably question whether the individual's professional actions or decisions are motivated by personal gain, such as financial, academic advancement, clinical revenue streams, or community standing." (See IOM, 2011, p. 78; the definition is drawn from Schünemann et al., 2009, p. 565.)

The IOM report also discusses intellectual COIs relevant to clinical practice guidelines, which it defines as "academic activities that create the potential for an attachment to a specific point of view that could unduly affect an individual's judgment about a specific recommendation" (IOM, 2011, p. 78; the definition is drawn from Guyatt et al., 2010, p. 739).

COIs can arise in various situations and may involve the individual or a member of the individual's family (spouse, domestic partner, parent, child, or another close relative). Examples of potential COIs include, but are not limited to, the following:

- Receiving payment for directly providing, or training other professionals to provide, health services related to the topic(s) of the guideline(s) being developed.
- Receiving honoraria for presentations or discussions of scientific or clinical issues related to the topic(s) of the guideline(s) being developed.
- Receiving royalties for books or other materials that address scientific or clinical issues related to the topic(s) of the guideline(s) being developed.
- Receiving funding, in the form of grants or contracts, for research on scientific or clinical issues related to the topic(s) of the guideline(s) being developed.
- Serving in a governance or other volunteer position in an organization that provides health services, promotes research related to health services, or develops or advocates for health service policies, related to the topic(s) of the guideline(s) being developed.
- Having strongly held opinions or other intellectual biases that might compromise objectivity in addressing the topic(s) of the guideline(s) being developed.
- Having a significant ownership interest in or significant capacity to influence decisions of a firm or organization that is an APA competitor, customer, or supplier, or a firm that conducts research or provides health services related to the topic(s) of the guideline(s) being developed.
- Being employed by or performing other work (including consulting) for a competitor, customer, or supplier of APA, regardless of the nature of that work.
- Conduct of APA business of any kind, or arranging for such business, with a firm that one owns or controls.
- Acceptance of any money, property, or anything of value from a person or firm doing or seeking to do business with APA.
- Receipt of direct or indirect economic benefit as a consequence of acquisition, lease, or sale by APA of any property, facilities, materials, or services.

COI Reporting: Covered Individuals must complete a Declaration of Interests form (appended below) disclosing any actual, potential, or perceived COIs prior to appointment to a committee/panel or as a consultant, and thereafter on an annual basis. If, during the year, a change occurs in a Covered Individual's COIs or in their family members' COIs, the Covered Individual must report that information immediately to APA staff who work on the clinical practice guideline initiative, who will share it with the relevant committee/panel Chair or Vice Chair. Covered Individuals are expected to provide any updates regarding their COIs orally at the beginning of all official committee/panel meetings.

In addition, Covered Individuals should disclose any professional papers or presentations on which they are listed as authors, prior to publication or delivery, that pertain to the topic(s) of the guideline(s) with which they are involved. This disclosure should be made to APA staff involved in the initiative.

If a Covered Individual is unsure whether particular information should be reported, or if the information is sensitive or confidential, the Individual may first consult with APA staff involved in the initiative about whether and how to report it. With the individual's permission, the staff may then seek further guidance from the Chair or Vice Chair of the relevant committee/panel.

Disclosure of any actual, potential, or perceived COI is the responsibility of everyone participating in the clinical practice guideline initiative. In general, if any Covered Individual or APA staff member is aware of circumstances that may constitute a COI involving another participant in the initiative, then the individual should first discuss it with that participant. If such a discussion is not appropriate or if the discussion does not produce a satisfactory result, then they should discuss it with APA staff and/or the relevant committee/panel chair or vice chair.

COI Review and Management: Each Covered Individual's completed Declaration of Interests form will be reviewed by APA staff and by the Chair and/or Vice Chair of the relevant committee/panel (or only by APA staff for consultants). The individual's resume or curriculum vitae, as well as publicly available materials about the individual, may also be examined in the course of the review. The primary purpose of the review is to determine whether the individual has any actual, potential, or perceived COIs that would preclude the individual from participation in the clinical practice guideline development initiative or require resignation from any role that they already have in the initiative.

Having one or more COIs does not necessarily mean that a Covered Individual cannot be involved in the initiative. If the reviewers determine that an individual's COIs do not preclude participation, then the reviewers will identify what actions, if any, may be needed to resolve or manage the impact of the COIs on the integrity (both actual and perceived) of the initiative. Examples of such actions may include limitations on the individual's participation in discussions, deliberations, or voting on specific matters and not being counted in determining a quorum for all or portions of a particular committee/panel meeting. Such actions would not prevent the individual from briefly stating their position or answering questions on relevant matters. Possible actions for managing the impact of COIs will be discussed with the Covered Individual, but final decisions on which actions are taken are made by APA staff in consultation with the relevant committee/panel chair and/or vice chair. In some cases, the APA General Counsel may participate in making such decisions. Also, in some cases in which the Covered Individual is a member of a Guideline Development or Update Panel or a consultant, the chair and/or vice chair of the Advisory Steering Committee may participate in making such decisions.

If any new COIs are reported or discovered during the period after a Declaration of Interests form has been submitted, APA staff and the relevant committee/panel chair and/or vice chair will determine whether any further actions are required for managing their impact on the initiative.

For Covered Individuals who are members of a committee/panel, information about all actual, potential, and perceived COIs are shared with all other members of the committee/panel.

Information about all actions taken to resolve or manage the impact of COIs is also shared with all members of the committee/panel.

Record of COIs: APA retains a copy of all completed Declaration of Interests forms and related documents. Both summary and individual information about Covered Individuals' COIs and of actions taken to manage their impacts may be made available for public view; this information potentially includes completed Declaration of Interests forms.[14] Information about COIs and actions taken may also appear in meeting minutes and summaries, which will also be available for public view.

14 Note, no information will be publicly released about people who are nominated or considered for positions on a committee/panel or as consultants but not selected.

References

Guyatt, G., Akl, E. A., Hirsh, J., Kearon, C., Crowther, M., Gutterman, D., Lewis, S. Z., Nathanson, I., Jaeschke, R., & Schünemann, H. (2010). The vexing problem of guidelines and conflict of interest: A potential solution. *Annals of Internal Medicine, 152*(11), 738–741. https://doi.org/10.7326/0003-4819-152-11-201006010-00254

Institute of Medicine. (2011). *Clinical practice guidelines we can trust*. National Academies Press. http://www.nap.edu/catalog.php?record_id=13058

Schünemann, H. J., Osborne, M., Moss, J., Manthous, C., Wagner, G., Sicilian, L., Ohar, J., McDermott, S., Lucas, L., & Jaeschke, R. (2009). An official American Thoracic Society policy statement: Managing conflict of interest in professional societies. *American Journal of Respiratory Critical Care Medicine, 180*(6), 564–580. https://doi.org/10.1164/rccm.200901-0126ST

Declaration of Interests

The purpose of this Declaration is to identify your actual, potential, and perceived conflicts of interest with APA and with your role in the APA clinical practice guideline initiative. Having conflicts of interest does not necessarily preclude participation in the initiative. Decisions about how conflicts should be managed will be made by APA staff in consultation with the Chair or Vice Chair of any committee or panel of which you are a member.

Please answer the following questions by marking either "Yes" or "No" and then explaining any "Yes" answers in the space immediately following or by attaching supplementary materials. When responding, please think about the full range of research, teaching, practice, writing, service work, and professional relationships in which you and your family members are involved. (You may consult with APA staff in advance if you have any questions or concerns about what information to provide on this form.)

The questions are organized into four sections:

I. Intellectual Interests

II. Financial and Professional Interests

III. Interests Related to APA

IV. Other Relevant Interests

For the purposes of this Declaration, a family member is a spouse, domestic partner, parent, child, or other relative with whom you have a comparably close tie.

Please attach a CV, resume, or other materials if these are needed to provide complete answers.

(Questions begin on next page.)

OVERVIEW

I. Intellectual Interests

1. Scientific/educational/professional communications
2. Communications with general audiences
3. Expert witness
4. Treatment and/or research approach
5. Topic proposals

II. Financial and Professional Interests

1. Payment for services or training
2. Honoraria
3. Royalties
4. Endorsements
5. Research funding
6. Employer
7. Roles in organizations
8. Influence/ownership/stock in health-related firms

III. Interests related to APA

1. APA roles
2. Influence/ownership/stock in firms of interest to APA
3. Paid work with other firms that do business with APA
4. Business ties to APA
5. Ties to others seeking business with APA
6. Other economic benefits related to APA business

IV. Other relevant interests

1. Other professional activities
2. Legal proceedings
3. Misconduct
4. Additional activities
5. Relationships

I. INTELLECTUAL INTERESTS

(The questions in this section concern only you, not family members.)

1. Scientific/educational/professional communications

a.	Over the past 12 months, have you had any scientific, educational, or professional publications (*including in-press*) or made any scientific, educational, or professional presentations related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing? Has your name been included on a relevant speakers' bureau list? *Please include both paid and nonpaid work.*	___ No ___ Yes	*If "Yes," please explain:**
b.	Do you expect that, over the next 12 months, you will have any such publications or presentations or that your name will be included on a speakers' bureau list?	___ No ___ Yes	*If "Yes," please explain:**

* If "Yes" to any of these questions, please provide a list of the relevant publications, presentations, courses, and speakers' bureaus. You may attach a copy of your CV or resume at the end of this form but please make sure to add any items that do not yet appear on those documents.

2. Communications with general audiences

a.	Over the past 12 months, have you made presentations to a general (*nonacademic, nonscientific*) audience that address research, clinical, or policy issues related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing? Have you been involved in organizing any events that include such presentations?	___ No ___ Yes	*If "Yes," please explain:**
b.	Over the past 12 months, have you published articles or books for a general audience or produced materials for television, radio, or the Internet (e.g., blogs, online petitions, Facebook, LinkedIn, TED Talks, Twitter, YouTube) that address these issues? *Please include both paid and nonpaid work. You need not include formal research publications for academic or scientific audience.*	___ No ___ Yes	*If "Yes," please explain:**

c.	Do you expect that, over the next 12 months, you will be involved in any such activities?	___ No ___ Yes	*If "Yes," please explain:**

* If "Yes" to any of these questions, please provide a list of the relevant publications, presentations, courses, and speakers' bureaus. You may attach a copy of your CV or resume at the end of this form but please make sure to add any items that do not yet appear on those documents.

3. Expert witness

a.	Over the past 12 months, have you served as an expert witness in a court case or other legal proceeding on a matter related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing?	___ No ___ Yes	*If "Yes," please explain:*

b.	Do you expect that, over the next 12 months, you will serve as an expert witness in a legal proceeding?	___ No ___ Yes	*If "Yes," please explain:*

4. Treatment and/or research approach

Do you identify yourself as having a particular approach or orientation to treatment and/or research (theoretical, methodological, societal, etc.)? Do you believe others perceive you as having a particular approach or orientation?

_____ No _____ Yes

If "Yes," please explain:

5. Topic proposals

Have you previously proposed to APA or another organization that it develop (a) a clinical practice guideline on a particular topic or (b) a systematic review of research on a particular topic that could serve as a foundation for subsequent guideline development?

_____ No _____ Yes

If "Yes," please describe the topic, the organization, and the form by which you proposed it:

II. FINANCIAL AND PROFESSIONAL INTERESTS

(The questions in this section concern both you and family members. For the purposes of this Declaration, a family member is a spouse, domestic partner, parent, child, or other relative with whom you have a comparably close tie.)

1. Payment for services or training

a.	Over the past 12 months, have you or a family member received payment for directly providing, or training other individuals to provide, health services related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing (*Health services include professional, community-based, and peer support services*)?	___ No ___ Yes	*If "Yes," please explain:*
b.	Do you expect that, over the next 12 months, you or a family member will receive payment for such activity?	___ No ___ Yes	*If "Yes," please explain:*

2. Honoraria

a.	Over the past 12 months, have you or a family member received any honoraria for presentations or discussions of scientific or clinical issues related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing (*Please include honoraria that were donated to charity*)?	___ No ___ Yes	*If "Yes," please explain:*
b.	Do you expect that, over the next 12 months, you or a family member will receive any such honoraria?	___ No ___ Yes	*If "Yes," please explain:*

3. Royalties

a.	Over the past 12 months, have you or a family member received royalties or advance payments for books, films, or other materials that address scientific or clinical issues related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing (*Please include royalties that were donated to charity*)?	___ No ___ Yes	*If "Yes," please explain:*
b.	Do you expect that, over the next 12 months, you or a family member will receive any such royalties or advance payments?	___ No ___ Yes	*If "Yes," please explain:*

4. Endorsements

a.	Over the past 12 months, have you or a family member received monetary or other material compensation for endorsing a product or service related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing (*Please include compensation that was donated to charity*)?	___ No ___ Yes	*If "Yes," please explain:*
b.	Do you expect that, over the next 12 months, you or a family member will receive such compensation for an endorsement?	___ No ___ Yes	*If "Yes," please explain:*

5. Research funding

a.	Over the past 12 months, have you or a family member received funding, in the form of grants, fellowships, or contracts, for research or research training on scientific or clinical issues related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing?	___ No ___ Yes	*If "Yes," please explain:*

b.	Do you expect that, over the next 12 months, you or a family member will receive any such funding?	___ No ___ Yes	*If "Yes," please explain:*

6. Employer

a.	Over the past 12 months, have you or a family member held a job with an employer that has economic, policy, or other interests in healthcare guidelines in general or in the particular topic(s) of the guideline(s) that you will be involved in developing or overseeing (*Please consider both full- and part-time positions and both permanent and temporary positions*)?	___ No ___ Yes	*If "Yes," please explain:*
b.	Do you expect that, over the next 12 months, you or a family member will hold a job with an employer that has such interests?	___ No ___ Yes	*If "Yes," please explain:*

7. Roles in organizations

a.	Over the past 12 months, have you or a family member served in a governance, advisory, or other position in an organization (other than APA) that provides health services, promotes research related to health services, or develops or advocates for health service policies, related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing?	___ No ___ Yes	*If "Yes," please explain:*

b.	Do you expect that, over the next 12 months, you or a family member will serve in such a position?	___ No ___ Yes	*If "Yes," please explain:*

8. Influence/ownership/stock in health-related firms

a.	Over the past 12 months, have you or a family member had significant capacity to influence decisions of a firm or organization that conducts research or provides health services related to the topic(s) of the guideline(s) being developed (*Health services include professional, community-based, and peer support services*)?	___ No ___ Yes	*If "Yes," please explain:*
b.	Over the past 12 months, have you and/or any family member(s) held an ownership interest greater than 5% in such a firm? Have you and/or any family member(s) owned stock in such a firm that exceeded $10,000 in value at any time during the past 12 months (*Please consider the total amounts held by you and family members, e.g., whether the stock that your spouse and your parent own adds up to more than $10,000 in value*)?	___ No ___ Yes	*If "Yes," please explain:*
c.	Do you or any family member hold stock options of any value in such a firm?	___ No ___ Yes	*If "Yes," please explain:*

d.	Do you expect that, over the next 12 months, you or a family member will have such capacity to influence a firm or have such ownership or stock interests?	___ No ___ Yes	*If "Yes," please explain:*

III. INTERESTS RELATED TO APA

(The questions in this section concern both you and family members. For the purposes of this Declaration, a family member is a spouse, domestic partner, parent, child, or other relative with whom you have a comparably close tie.)

1. APA roles

a.	Over the past 12 months, have you or a family member been a member of any APA governance group, task force, or advisory body (*Please include roles in APA divisions*)?	___ No ___ Yes	*If "Yes," please explain:*
b.	Do you expect that, over the next 12 months, you or a family member will serve as a member of such an APA group?	___ No ___ Yes	*If "Yes," please explain:*

2. Influence/ownership/stock in firms of interest to APA

a.	Over the past 12 months, have you or a family member had a significant capacity to influence decisions of a firm or organization that is an APA competitor, customer, or supplier?	___ No ___ Yes	*If "Yes," please explain:*

b.	Over the past 12 months, have you and/or any family member(s) held an ownership interest greater than 5% in such a firm? Have you and/or any family member(s) owned stock in such a firm that exceeded $10,000 in value at any time during the past 12 months (*Please consider the total amounts held by you and family members, e.g., whether the stock that your spouse and your parent own adds up to more than $10,000 in value*)?	___ No ___ Yes	*If "Yes," please explain:*
c.	Do you or any family member(s) hold stock options of any value in such a firm?	___ No ___ Yes	*If "Yes," please explain:*
d.	Do you expect that, over the next 12 months, you or a family member will have such capacity to influence a firm or have such ownership or stock interests?	___ No ___ Yes	*If "Yes," please explain:*

3. Paid work with other firms that do business with APA

a.	Over the past 12 months, have you or a family member been employed by or performed other work (*including consulting*) for a competitor, customer, or supplier of APA, regardless of the nature of that work?	___ No ___ Yes	*If "Yes," please explain:*
b.	Do you expect that, over the next 12 months, you or a family member will be engaged in such employment or work?	___ No ___ Yes	*If "Yes," please explain:*

4. Business ties to APA

a.	Over the past 12 months, have you or a family member conducted APA business of any kind, or arranged for such business, with a firm that is owned or controlled by you or a family member?	___ No ___ Yes	*If "Yes," please explain:*
b.	Do you expect that, over the next 12 months, you or a family member will conduct or arrange for such business?	___ No ___ Yes	*If "Yes," please explain:*

5. Ties to others seeking business with APA

a.	Over the past 12 months, have you or a family member accepted any money, property, or anything of value from a person or firm doing or seeking to do business with APA?	___ No ___ Yes	*If "Yes," please explain:*

b.	Do you expect that, over the next 12 months, you or a family member will accept any money, property, or anything of value from a person or firm doing or seeking to do business with APA?	___ No ___ Yes	*If "Yes," please explain:*

6. Other economic benefits related to APA business

a.	Over the past 12 months, have you or a family member received any direct or indirect economic benefit as a consequence of acquisition, lease, or sale by APA of any property, materials, or services?	___ No ___ Yes	*If "Yes," please explain:*
b.	Over the past 12 months, have you or a family member received any other direct or indirect economic benefit related to APA business that are not covered in the previous questions?	___ No ___ Yes	*If "Yes," please explain:*
c.	Do you expect that, over the next 12 months, you or a family member will receive any such economic benefit?	___ No ___ Yes	*If "Yes," please explain:*

IV. OTHER RELEVANT INTERESTS

(The questions in this section concern both you and family members. For the purposes of this Declaration, a family member is a spouse, domestic partner, parent, child, or other relative with whom you have a comparably close tie.)

1. Other professional activities

a.	Over the past 12 months, have you or a family member engaged in any other scientific, academic, clinical, business, or policy activities, either paid or unpaid, related to the topic(s) of the guideline(s) that you will be involved in developing or overseeing (*This question is asking about activities not already addressed in answers to the previous questions*)?	___ No ___ Yes	*If "Yes," please explain:*
b.	Do you expect that, over the next 12 months, you or a family member will engage in other such activities?	___ No ___ Yes	*If "Yes," please explain:*

2. Legal proceedings

At any point over the last 12 months, have you or a family member been under prosecution for a crime? Have you or family member been involved in any civil legal proceedings as either defendant or plaintiff (*Please include all such legal proceedings, including those not related to the topic(s) of the guideline(s) you will be involved in developing or overseeing*)?

____ No____ Yes

If "Yes" to either question, please explain:

3. Misconduct

At any point over the last 12 months, have you or a family member been under formal charges of misconduct by any organization? This may be any type of misconduct (ethical, academic, professional, research, financial, etc., including harassment and discrimination). What is the current status of any such charges or related investigation? If charges have been resolved, what was the outcome? (*Please include all such charges, including those not related to the topic(s) of the guideline(s) you will be involved in developing or overseeing.*)

____ No____ Yes

If "Yes," please explain:

4. Additional activities

Is there any other information regarding your or your family members' activities, including interactions with organizations and individuals, that you believe is relevant to the guideline(s) that you will be involved in developing or overseeing or to your working with APA (*Please focus on activities that may constitute actual, potential, or perceived conflicts of interest, and include activities that occurred* **more than 12 months ago or are expected to occur more than 12 months from now**)?

____ No____ Yes

If "Yes," please explain:

5. Relationships

Do you have any concerns that your work on guideline development or with APA could have a significant negative impact on any **professional or personal relationships** you have with mentors, students, trainees, colleagues, supervisors, funders, friends, or relatives (*For this question, please consider all relatives in addition to spouse, domestic partner, parents, and children*)?

____ No____ Yes

If "Yes," please explain:

Finally, please read, complete, and sign the following statement:

I, _____, have read and understood the requirements of **APA's Conflict of Interest Policy** above and I agree to abide by the Policy throughout the official term of my position in the APA clinical practice guideline initiative.

I have also fully and truthfully answered the questions in the **Declaration of Interests** above about all actual, potential, and perceived conflicts of interest.

If any new actual, potential, or perceived conflicts of interest arise, I agree to disclose them as soon as possible, but within no more than 30 days, to APA staff and to the chair or vice chair of any committee or panel of which I am a member.

_____

DocuSign® SignatureDate

Please attach your current CV, resume, or other materials, as needed, before submitting the DocuSign® form by clicking on the paper clip icon.

Please also sign the separate Intellectual Property Statement.

For any questions, please contact the APA Clinical Practice Guidelines Team at cpg@apa.org.

For APA Staff Use Only

APPENDIX D

Voting Procedures

Established by the Advisory Steering Committee (ASC)

1. What % should be considered a majority for winning a vote?

The ASC agreed that at least 70% of the whole constituted panel would constitute a strong recommendation. For conditional recommendations, agreement among more than 50% with less than 20% of panel members preferring an alternative recommendation must be reached. The denominator for voting will be the number of the entire panel membership, except in special cases, to be determined by the ASC. Such cases could include the lack of participation by a particular member in the guideline development process. APA staff will consult with ASC liaisons to panels as needed regarding special cases. However, panel members who are normally participatory, but have missed crucial conversations and/or votes due to extenuating circumstances, will still be allowed to share their opinions.

2. Should dissenting opinions from members that disagree be added to recommendation statements?

The ASC agreed that there may be a section in final guideline documents for any dissenting opinions that panel members have. A footnote will disclose the number of dissenting panel members and possibly their names.

APPENDIX E

Study Eligibility Criteria

TABLE E1

Study Eligibility Criteria: Populations, Interventions, Comparators, Outcomes, Timing, and Settings (PICOTS) Framework

Category	Definition
Population (P)	Adults (18 years and older) with chronic musculoskeletal pain (including temporomandibular joint [TMJ] pain).
Interventions (I)	Behavioral / psychological content, curriculum-based interventions (any curriculum-based intervention / program as long as there is a psychological / behavioral component within the intervention / program) and is delivered by a health care professional. Multimodal treatments are included.
Comparators (C)	Waitlist, control (active or placebo), treatment as usual (TAU) / usual care, medical or physical interventions (e.g., physical therapy, pharmacological treatment, or other medical interventions including surgery), complementary and integrative health. Multimodal treatments are included.
Outcomes (O)	Physical functioning and performance [e.g., activities of daily living (ADLs), disability, impairment, pain-related interference, changes in strength or stamina, range of motion] based on objective data and/or Patient Reported Outcomes (PROMs) Patient Reported Outcomes (PROMs) could reflect any of the outcomes: Mental health and emotional functioning [e.g., anxiety, depression, anger] Health-related quality of life [e.g., impacts on social activities, usual role, vitality, general health, sleep, pain coping (e.g., fear avoidance, pain catastrophizing, acceptance of pain)] Pain intensity Adverse effects Patient self-efficacy Patient global impression of change Employment status / disability benefits
Timing (T)	Pretreatment to Posttreatment Studies will be included that have follow-up at any time interval. There will be no limitations on the duration or frequency of interventions or contacts.
Setting (S)	Outpatient or inpatient settings.

APPENDIX F

AMSTAR-2 Ratings

Methodological Quality of the Included Systematic Reviews / Meta-Analyses

Critical Domain										
Systematic Review	Overall Confidence Rating	Included components of PICO	A priori study design	Explained selection of study designs for inclusion	Comprehensive literature search	Duplicate study selection and data extraction	List of excluded studies and justify exclusion	Adequate detail of included studies	Assessed Risk of Bias (RoB) in **RCTs**	Assessed RoB in **non-RCTs**
Geraghty et al., 2021	Moderate	Y	Partial Y (did not note deviations from protocol)	N	Partial Y (did not consult content experts nor examine grey lit)	Y	Partial Y (did not provide list of excluded studies)	Y	Y	Includes only RCTs
Williams et al., 2020	High	Y	Y	Y	Partial Y (did not search for grey lit.)	Y	Y	Y	Y	Includes only RCTs

	Reported sources of funding for studies included in review	Appropriate methods to combine **RCT** findings (meta-analysis)	Appropriate methods to combine **non-RCT** findings (meta-analysis)	Assessed potential impact of RoB in each study in meta-analysis results	Discussed likely impact of RoB in each study on results of review	Discussed heterogeneity	Likelihood of publication bias assessed	Conflict of Interest stated
Geraghty et al., 2021	N	Y	Includes only RCTs	Y	Y	Y	Y	Y
Williams et al., 2020	Y	Y	Includes only RCTs	Y	Y	Y	Y	Y

High (*no or one noncritical weakness*): The systematic review provides an accurate and comprehensive summary of the results of the available studies that address the question of interest.

Moderate (*more than one noncritical weakness):** The systematic review has more than one weakness but no critical flaws. It may provide an accurate summary of the results of the available studies that were included in the review.

Low (*one critical flaw with or without noncritical weaknesses*): The review has a critical flaw and may not provide an accurate and comprehensive summary of the available studies that address the question of interest.

Critically Low (*more than one critical flaw with or without noncritical weaknesses*): The review has more than one critical flaw and should not be relied on to provide an accurate and comprehensive summary of the available studies.

*Multiple noncritical weaknesses may diminish confidence in the review, and it may be appropriate to move the overall appraisal down from moderate to low confidence.

Adapted from:

Shea, B. J., Reeves, B. C., Wells, G., Thuku, M., Hamel, C., Moran, J., Moher, D., Tugwell, P., Welch, V., Kristjansson, E., & Henry, D. A. (2017). AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or nonrandomised studies of healthcare interventions, or both. *BMJ, 358*, Article j4008. https://doi.org/10.1136/bmj.j4008

APPENDIX G

Dose, Timing and Session Duration of Treatments

TABLE G1:

Chronic Musculoskeletal / Widespread Pain

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Acceptance and Commitment Therapy (ACT)	4–7 sessions	Weekly	4-7 weeks	60-90
ACT (group)	4–9 sessions	1–3 times per week	7 weeks	120–240
Active Physical Treatment (APT; group)	30 sessions	3 times per week	10 weeks	105
APT + Problem Solving Training (PST; group)	19 sessions	Biweekly	10 weeks	60
Affective Self Awareness (ASA; group)	4 sessions	Weekly	4 weeks	120
Behavior Therapy	7 sessions	Weekly	7 weeks	90
Behavior Therapy (group)	8–36 sessions	Daily or 1–3 times per week	5-24 weeks	60–120
Behavior Therapy + Cognitive Behavioral Therapy (CBT; group)	36 sessions	1–2 times per week	24 weeks	90–120
Biofeedback + Exercise	6 sessions	Weekly	6 weeks	90–180
Biofeedback + Relaxation	6 sessions	Weekly	6 weeks	90–180
Body Awareness Therapy (BAT; group)	19 sessions	Weekly	21 weeks	90
Brief Psychodynamic Interpersonal Psychotherapy	12–25 sessions	Weekly	12-25 weeks	45–90
CBT	4–25 sessions	1–2 times per week	6-34 weeks	50–120
CBT (group)	4–24 sessions	Daily or 1–2 times per week	1-26 weeks	20–210
CBT + Exercise	17–30 sessions	1–5 times per week	5-9 weeks	20–240
CBT + Biofeedback	6–25 sessions	1–2 times per week	6 weeks	60–120

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
CBT + Hypnosis	6 sessions	Unavailable	Unavailable	60
CBT + Hypnosis (group)	14 sessions	Weekly	14 weeks	120
CBT + Multidisciplinary Treatment (group)	24–29 sessions	1–2 times per week	12–17 weeks	120–150
Education + Exercise (group)	6–36 sessions	1–4 times per week	6–26 weeks	10-–20
Emotional Awareness and Expression Therapy	8 sessions	Weekly	8 weeks	90
Exercise (group)	16–30 sessions	2–5 times per week	6–26 weeks	10–90
Group Psychotherapy	26 sessions	Weekly	26 weeks	Unavailable
Intensive Short-Term Dynamic Psychotherapy	20 sessions	Weekly	20 weeks	60
Interactional School of Fibromyalgia (group)	9–10 sessions	Weekly	11 weeks	120
Interdisciplinary Pain Management	11–12 sessions	Daily or 2 times per week	2–6 weeks	105–300
Internet-Based Self-Management Program (group)	13–18 sessions	3 times per week	6 weeks	60–120
Mensendieck System	18 sessions	Weekly	18 weeks	40
Mensendieck System (group)	2 sessions	Weekly	2 weeks	120
Mindfulness-Based Stress Reduction (MBSR; group)	8 sessions	Weekly	8 weeks	90–120
MBSR + Quigong (group)	8 sessions	Weekly	8 weeks	150
Multidisciplinary Treatment (group)	5–41 sessions	Daily, daily then monthly, or 1–3 times per week	1–52 weeks	60–3,990 contact minutes
Multidisciplinary Pain Management Group + Graded Exposure In Vivo (group)	31 sessions	2 times per week	8 weeks	3,990 contact minutes
Multicomponent Treatment (group)	8 sessions	Weekly	8 weeks	120
Occupational Therapy	10 sessions	Weekly	10 weeks	120
Pregablin	300–600 mg	Daily	Unavailable	N/a
PST (group)	10 sessions	Weekly	10 weeks	90

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Psychoeducation	6–9 sessions	Weekly	6-9 weeks	60–120
Relaxation / Relaxation Response Training	7–10 sessions	Weekly	7–12 weeks	50–90
Rehabilitation Program + Exercise	20 sessions	2 times per week	10 weeks	60
Self-Management (group)	1–12 sessions	Daily or 1–2 times per week	1 day–12 weeks	90–360
Self-Management (inpatient; group)	5–7 sessions	Daily	1-4 weeks	90–300
Self-Management + Exercise (group)	6–7 sessions	1–2 times per week	6-7 weeks	60–360
Written Emotional Disclosure	4 sessions	Unavailable	Unavailable	20

TABLE G2:

Chronic Low Back Pain

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Acupuncture	6–15 sessions	1–3 times per week	5–12 weeks	Unavailable
CBT	8 sessions	1–2 times per week	6–8 weeks	Unavailable
Combined Exercise (group)	24 sessions	2–3 times per week	8–12 weeks	Unavailable
Exercise (group)	18 sessions	3 times per week	6 weeks	Unavailable
GaAs Low-Level Laser Therapy	12 sessions	2 times per week	6 weeks	Unavailable
Spinal Manipulation	4–24 sessions	1–2 times per week	4–12 weeks	Unavailable
Massage	4–24 sessions	1–3 times per week	2–10 weeks	14–40
MBSR (group)	8 sessions	Weekly	8 weeks	90–120
Multidisciplinary Rehabilitation	4–30 sessions	1–5 times per week	0.5–13 weeks	240–9,000 (total)

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
McKenzie Method of Mechanical Diagnosis and Therapy	10 sessions	2 times per week	5 weeks	30–40
Neuromuscular Re-Education (exercise)	10–20 sessions	Daily or 1–5 times per week	4–8 weeks	Unavailable
Operant Therapy	8 sessions	Weekly	8 weeks	Unavailable
Pilates (group)	6–24 sessions	1–3 times per week	6–12 weeks	Unavailable
Progressive Muscle Relaxation	6 sessions	Weekly	6–8 weeks	Unavailable
Qigong (group)	12 sessions	Weekly	12	Unavailable
Strength Training	5 sessions	Daily	6 weeks	60
Yoga (group)	5–48 sessions	1–4 times per week	4–24 weeks	60

TABLE G3:
Chronic Neck Pain

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Acetaminophen	750 mg	Every 6 hours as needed	Unavailable	N/a
Acupuncture	5–14 sessions	1–3 times per week	2–22 weeks	20–50
Alexander Technique plus Usual Care	12–20 sessions	1–2 times per week	22 weeks	30–50
Basic Body Awareness Therapy	20 sessions	2 times per week	10 weeks	90
Cervical Traction [Intermittent]	12 sessions	2 times per week	6 weeks	20
Combined Exercises	12–20 sessions	1–2 times per week	10–12 weeks	60–90
Combined Exercises plus Advice	12 sessions	2 times per week	6 weeks	60
Coordination Training [Neuromuscular Re-Education]	22–30 sessions	2–3 times per week	10–11 weeks	30–60
Dynamic Strengthening Exercises [Muscle Performance]	36–156 sessions	3 times per week	12–52 weeks	20–30

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Endurance Training [Muscle Performance]	30 sessions	3 times per week	10 weeks	60
Fixed Resistance Training [Muscle Performance]	≥18 sessions	≥3 times per week	6 weeks	Unavailable
Ibuprofen	800 mg	Daily	15 days	N/a
Massage	6–22 sessions	1–2 times per week	3–11 weeks	30
Pilates [Muscle Performance]	24 sessions	2 times per week	12 weeks	60
Progressive Resistance Training [Muscle Performance]	≥18 sessions	≥3 times per week	6 weeks	Unavailable
Relaxation Training	36 sessions	3 times per week	12 weeks	30
Qigong (group)	10–12 sessions	1–2 times per week	13 weeks	60
Strength Training [Muscle Performance]	10–30 sessions	1–3 times per week	10–13 weeks	30–60
Stress Management	10 sessions	Weekly	10 weeks	120
Thiocolchicoside	4 mg	2 times per day	15 days	N/a
Trilisate	500 mg	Daily	Unavailable	N/a
Zaltoprofen	80 mg	3 times per day	3 weeks	N/a

TABLE G4:

Knee Osteoarthritis Pain

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Acupuncture	8–25 sessions	1–5 times per week; possibly tapered to biweekly then monthly	2–26 weeks	20–30
Acupuncture (group)	6 sessions	Weekly	6 weeks	20
Acupuncture plus Usual Care	10–16 sessions	1–2 times per week	8–10 weeks	10–30
Aerobic Exercise	39 sessions	3 times per week	13 weeks	60
Aquatic Exercise	16–48 sessions	2–3 times per week	8–16 weeks	50–60
Cognitive Behavioral Training (group) plus Usual Care	6 sessions	Weekly	6 weeks	120

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Exercise	9–51 sessions	2–3 times per week	8–26 weeks	25–60
Exercise (group)	6–24 sessions	1–3 times per week	6–8 weeks	60
Gait Training	24 sessions	2 times per week	12 weeks	45
IMPAACT Motivational Interviewing	1 initial session and 5 additional sessions	Unavailable	Unavailable	45–60 (initial); 10–15 (additional)
Interned-Based Exercise Training	Unavailable	3 times per week	Unavailable	Unavailable
Internet Cognitive Behavioral Therapy (iCBT)	Unavailable	Unavailable	Unavailable	Unavailable
Isokinetic Strengthening	24 sessions	3 times per week	8 weeks	Unavailable
Isometric Strengthening	24 sessions	3 times per week	8 weeks	Unavailable
Isotonic Strengthening	24 sessions	3 times per week	8 weeks	Unavailable
Manual Therapy	9 sessions	Unavailable	9 weeks	Unavailable
Massage	8–12 sessions	1–2 times per week	4–8 weeks	30–60
Neuromuscular Exercise (NEMEX; group)	16 sessions	2 times per week	8 weeks	60
Pain Coping Skills Training (group)	10–18 sessions	Weekly or Biweekly	12-24 weeks	45–60
Physiotherapy	6–9 sessions	Weekly	2-10 weeks	30–60
Physical Therapy	8 sessions	Unavailable	18 weeks	60
Resistance Exercise	39 sessions	3 times per week	13 weeks	60
Tai Chi (group)	24–36 sessions	2–3 times per week	12 weeks	40–60

TABLE G5:

Hip Osteoarthritis Pain

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Exercise	9–12 sessions	Unavailable	9–16 weeks	Unavailable
Exercise (group)	8 sessions	Weekly	8 weeks	Unavailable
Exercise + Usual Care	16 sessions	Weekly	12 weeks	45
Manual Therapy	9 sessions	2 times per week	5–9 weeks	Unavailable

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Stress Management	10 sessions	Weekly	10 weeks	Unavailable

TABLE G6:

Hand Osteoarthritis Pain

Treatment	Dose Range (No. of sessions or mg)	Timing Range	Duration Range	Session Duration Range, in minutes
Exercise (group)	4 sessions	Unavailable	12 weeks	Unavailable
Multidisciplinary Treatment Program (group)	4 sessions	Unavailable	Unavailable	150–180

APPENDIX H

Select Demographic Characteristics of Studies

Reviewed From the Systematic Reviews / Meta-Analyses

TABLE H1

Select Demographic Characteristics of Studies Reviewed From the Three Systematic Reviews/ Meta-Analyses

		Total	
Study Location		N	%
	International	185	72
	United States	72	28
	TOTAL	257	100
Study Demographics			
Gender			
	Reported	250	97
	20%–80% female	165	66
	< 20% female	6	2
	< 20% male	79	32
	Not Reported (NR)	7	3
	TOTAL	257	100
Ethnicity			
	Reported	9	4
	20%–80% Hispanic / Latino/a/e/x	1	11
	< 20% Hispanic / Latino/a/e/x	8	89
	> 80% Hispanic / Latino/a/e/x	0	0
	Not Reported (NR)	248	96
	TOTAL	257	100
Race			
	Reported	65	25
	20%–80% Nonwhite	21	32
	< 20% Nonwhite	44	68
	> 80% Nonwhite	0	0

		Total	
	Not Reported (NR)	192	75
	TOTAL	257	100

Note. The following tables were developed by APA staff with data pulled from each included individual study across the three systematic reviews. APA staff also calculated the data that was reported within each individual study to determine the overall representation of the studies.

Skelly et al. (2020) / Agency for Healthcare Research and Quality

Key Question #1: Chronic Low Back Pain (Exercise)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Areeudom-wong, 2017	**Total: 42** G1: 21 G2: 21	Thailand	Chronic, nonspecific LBP	**Overall: 35.5** G1: 35 G2: 36	**Overall: 73.5%** G1: 71% G2: 76%	NR	NR
Brämberg, 2017	**Total: 107** G2: 52 G3: 55	Sweden	Nondisabling, nonspecific LBP, with or without neck pain	**Overall: 45** G2: 46 G2: 44	**Overall: 71%** G2: 62% G3: 80%	NR	NR
Costa, 2009	**Total: 154** G1: 77 G2: 77	Australia	Nonspecific LBP	**Overall: 54** G1: 55 G2: 53	**Overall: 60%** G1: 58% G2: 62%	NR	NR
Garcia, 2018	**Total: 147** G1: 74 G2: 73	Brazil	Chronic LBP	**Overall: 57** G1: 58 G2: 56	**Overall: 76.2%** G1: 78.4% G2: 74%	NR	NR
Goldby, 2006	**Total: 124** G1: 84 G3: 40	United Kingdom	Chronic low back disorder	**Overall: 42** G1: 43 G3: 41	**Overall: 68%** G1: 68% G3: 68%	NR	**Overall: 29%** G1: 20% G3: 38%
Kankaanpaa, 1999	**Total: 54** G1: 30 G2: 24	Finland	Nonspecific, chronic LBP	**Overall: 39.5** G1: 40 G2: 39	**Overall: 35%** G1: 36.6% G2: 33.3%	NR	NR
Mazloum, 2017	**Total: 60** G1: 20 G2: 20 G3: 20	Iran	Nonspecific LBP	**Overall: 39.7** G1: 37 G2: 43 G3: 39	NR	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Miyamoto, 2013	**Total: 86** G1: 43 G2: 43	Brazil	Chronic nonspecific LBP	**Overall: 39.5** G1: 41 G2: 38	**Overall: 81.5%** G1: 84% G2: 79%	NR	NR
Miyamoto, 2018	**Total: 295** G1: 74 G2: 74 G3: 74 G4: 73	Brazil	Chronic LBP	**Overall: 48** G1: 47 G2: 47 G3: 49 G4: 49	**Overall: 75.5%** G1: 78% G2: 70% G3: 78% G4: 76%	NR	NR
Nassif, 2011	**Total: 75** G1: 37 G2: 38	France	Chronic LBP (workers in an assembly line of car manufacturing)	**Overall: 45** G1: 45 G2: 45	**Overall: 16%** G1: 11% G2: 21%	NR	NR
Natour, 2014	**Total: 60** G1: 30 G2: 30	Brazil	Chronic, nonspecific LBP	**Overall: 48** G1: 48 G2: 48	**Overall: 78.5%** G1: 80% G2: 77%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #1: Chronic Low Back Pain (Psychological Therapies)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Cherkin, 2016	**Total: 225** G2: 112 G3: 113	United States	Nonspecific LBP	**Overall: 49** G2: 49 G3: 49	**Overall: 68%** G2: 59% G3: 77%	**Overall: 8%** G2: 9% G3: 7%	**Overall: 6.3%** *African American*: Overall: 3.5% G2: 4% G3: 3% *Asian*: Overall: 4% G2: 5% G3: 3% *Other*[15]: Overall: 11.5% G2: 8% G3: 15%
Johnson, 2007	**Total: 234** G1: 116 G2: 118	United Kingdom	Persistent disabling LBP	**Overall: 48** G1: 47 G2: 49	**Overall: 59.5%** G1: 61% G2: 58%	NR	NR

15 The study defined other (N = 35) as multiracial (n = 19), other (not specified [n = 9]), missing (n = 5), or Native American / Pacific Islander (n = 2)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Lamb, 2010	**Total: 701** G1: 468 G2: 233	United Kingdom	Moderately troublesome LBP (≥6 weeks duration)	**Overall: 53.5** G1: 53 G2: 54	**Overall: 60%** G1: 59% G2: 61%	NR	**Overall: 2.6%** *Mixed:* Overall: 1% G1: 1% G2: 1% *Asian:* Overall: 4% G1: 5% G2: 3% *Black:* Overall: 2% G1: 2% G2: 2% *Chinese*: Overall: <1% G1: <1% G2: <1% *Other:* Overall: 5% G1: 5% G2: 5%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Lamb, 2012 [extended follow-up]	**Total: 395** G1: 281 G2: 114	United Kingdom	Moderately troublesome LBP (≥6 weeks duration) who responded to extended follow-up (ranging 20 and 50 months; mean follow-up 34 months)	**Overall: 56** G1: 55 G2: 57	**Overall: 61.5** G1: 60% G2: 63%	NR	**Overall: 2%** *Asian or Asian British:* Overall: 3% G1: 3% G2: 0% *Black or Black British:* Overall: 1% G1: 1% G2: 1% *Chinese or Other:* Overall: 1% G1: 1% G2: 1%
Poole, 2007	**Total: 156** G1: 54 G2: 57 G3: 45	United Kingdom	Benign chronic LBP	**Overall: 46.5** G1: 46 G2: NR G3: 47	**Overall: 48.5%** G1: 46% G2: NR G3: 51%	NR	NR
Turner, 1990	**Total: 48** G1: 25 G4: 23	United States	Chronic LBP	**Overall: 44** G1: NR G4: NR	**Overall: 48%** G1: NR G4: NR	NR	NR

Note. G – Group; NR – Not reported.

Key Question #1: Chronic Low Back Pain (Physical Modalities – Low-level Laser Therapy)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Djavid, 2007	**Total: 53** G1: 16 G2: 19 G3: 18	Iran	LBP	**Overall: 38** G1: 40 G2: 38 G3: 36	**Overall: 4.7%** G1: 5% G2: 7% G3: 2%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #1: Chronic Low Back Pain (Manual Therapies—Spinal Manipulation)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Bronfort, 2011	**Total: 301** G1: 100 G2: 100 G3: 101	United States	Mechanical LBP with or without radiating pain to the lower extremity	**Overall: 45.1** G1: 45.2 G2: 44.5 G3: 45.6	**Overall: 60.7%** G1: 67% G2: 57% G3: 58%	NR	NR
Ferreira, 2007	**Total: 240** G1: 80 G2: 80 G3: 80	Australia	Nonspecific LBP	**Overall: 53.7** G1: 54 G2: 52 G3: 55	**Overall: 68.7%** G1: 70% G2: 66% G3: 70%	NR	NR
Gibson, 1985	**Total: 75** G1: 41 G2: 34	United Kingdom	Chronic LBP	**Overall: 37** G1: 34 G3: 40	**Overall: 47%** G1: 61% G3: 32%	NR	NR
Gudavalli, 2006	**Total: 235** G1: 123 G2: 112	United States	LBP from L1 to SI joint for >3 months, palpatory tenderness over one or more lumbar zygapophy-seal joints	**Overall: 41.5** G1: 42 G2: 41	**Overall: 37.5%** G1: 34% G2: 41%	**Overall: 5%** G1: 4% G2: 6%	**Overall: 4.3%** *African American:* Overall: 6.5% G1: 7% G2: 6% *Asian:* Overall: 5.5% G1: 7% G2: 4% *Other:* Overall: 1% G1: 0% G2: 2%
Haas, 2014	**Total: 400** G1: 100 G2: 100 G3: 100 G4: 100	United States	LBP of mechanical origin	**Overall: 41.3** G1: 41 G2: 42 G3: 41 G4: 41	**Overall: 49.8%** G1: 49% G2: 49% G3: 52% G4: 49%	Unknown	*Nonwhite or Hispanic:* **Overall: 59%** G1: 18% G2: 11% G3: 16% G4: 14%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Hondras, 2009	**Total: 240** G1: 96 G2: 95 G3: 49	United States	Nonspecific LBP with or without radiation to extremity	**Overall: 63** G1: 64 G2: 62 G3: 63	**Overall: 43.3%** G1: 45% G2: 44% G3: 41%	**Overall: 3.4%** G1: 2.1% G2: 2.1% G3: 6.1%	**Overall: 3.1%** G1: 4.1% G2: 3.2% G3: 2%
Senna, 2011	**Total: 94** G1: 27 G2: 27 G3: 40	Egypt	Chronic nonspecific LBP	**Overall: 41.3** G1: 40 G2: 42 G3: 42	**Overall: 25%** G1: 27% G2: 24% G3: 24%	NR	NR
UK BEAM Trial Team, 2004	**Total: 1,334** G1: 353 G2: 338 G3: 310	United Kingdom	Chronic LBP	**Overall: 43** G1: 42 G2: 42 G3: 44	**Overall: 57%** G1: 63% G2: 53% G3: 55%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #1: Chronic Low Back Pain (Manual Therapies—Massage)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Ajimsha, 2014	**Total: 74** G1: 38 G2: 36	India	Chronic LBP in nurses	**Overall: 35** G1: 36 G2: 34	**Overall: 77%** G1: 76% G2: 78%	NR	NR
Arguisuelas, 2017	**Total: 54** G1: 27 G2: 27	Spain	Nonspecific chronic LBP	**Overall: 46.5** G1: 47 G2: 46	**Overall: 61%** G1: 59% G2: 63%	NR	NR
Cherkin, 2001	**Total: 168** G1: 78 G2: 90	United States	Primary care visit for LBP	**Overall: 45** G1: 46 G2: 44	**Overall: 62.5%** G1: 69% G2: 56%	NR	**Overall: 14.5%** G1: 18% G2: 11%
Cherkin, 2011	**Total: 401** G1: 132 G2: 136 G3: 133	United States	LBP	**Overall: 47** G1: 46 G2: 47 G3: 48	**Overall: 64.3%** G1: 66% G2: 65% G3: 62%	NR	**Overall: 14.3%** G1: 14% G2: 15% G3: 14%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Little, 2008	**Total: 578** G1: 72 G2: 75 G3: 73 G4: 72 G5: 72 G6: 71 G7: 71 G8: 72	United Kingdom	Primary care visit for LBP	**Overall: 45.5** G1: 46 G2: 45 G3: 45 G4: 46 G5: 46 G6: 45 G7: 45 G8: 46	**Overall: 69.5%** G1: 78% G2: 63% G3: 64% G4: 73% G5: 78% G6: 63% G7: 64% G8: 73%	NR	NR
Movahedi, 2017	**Total: 50** G1: 25 G2: 25	Iran	Chronic back pain	**Overall: 37** G1: 37 G2: 37	**Overall: 100%** G1: 100% G2: 100%	NR	NR
Poole, 2007	**Total: 156** G1: 54 G2: 57 G3: 45	United Kingdom	Benign chronic LBP	**Overall: 46.5** G1: 46 G2: NR G3: 47	**Overall: 58%** G1: 65% G2: NR G3: 51%	NR	NR
Quinn, 2008	**Total: 15** G1: 7 G2: 8	United Kingdom	Nonspecific LBP	**Overall: 43.5** G1: 42 G2: 45	**Overall: 68%** G1: 86% G2: 50%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #1: Chronic Low Back Pain (Mindfulness-Based Stress Reduction)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Banth, 2015	**Total: 48** G1: NR G2: NR	Iran	Nonspecific chronic LBP	**Overall: 40** G1: NR G2: NR	**Overall: 100%**	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Cherkin, 2016 Cherkin, 2017 Herman, 2017	**Total: 225** G1: 113 G3: 112	United States	Nonspecific LBP	**Overall: 49.5** G1: 50 G3: 49	**Overall: 63.5%** G1: 61% G3: 66%	**Overall: 5.5%** G1: 4% G3: 7%	**Overall: 6.3%** *African American:* Overall: 3.5% G1: 4% G3: 3% *Asian:* Overall: 3.5% G1: 4% G3: 3% *Other:* Overall: 12% G1: 9% G3: 15%
Morone, 2009	**Total: 35** G1: 16 G2: 19	United States	Chronic LBP	**Overall: 75.5** G1: 78 G2: 73	**Overall: 63.5%** G1: 69% G2: 58%	NR	**Overall: 7.5%** *African American:* Overall: 10% G1: 5% G2: 15% *Asian:* Overall: 5% G1: 0% G2: 5%
Morone, 2016	**Total: 282** G1: 140 G2: 142	United States	Chronic LBP	**Overall: 74.5** G1: 75 G2: 74	**Overall: 66%** G1: 66% G2: 66%	NR	**Overall: 2.4%** *African American:* Overall: 28.5% G1: 30% G2: 27% *Asian*: Overall: 2% G1: 0% G2: 2%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Zgierska, 2016	**Total: 35** G1: 21 G2: 14	United States	Chronic LBP treated with long-term opioids	**Overall: 51.8** G1: NR G2: NR	**Overall: 80%** G1: NR G2: NR	NR	NR

Note. G – Group; NR – Not reported.

Key Question #1: Chronic Low Back Pain (Mind-Body Practices—Yoga)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Bramberg, 2017	**Total: 159** G1: 52 G2: 52 G3: 55	Sweden	Nondisabling, nonspecific LBP, with or without neck pain	**Overall: 45.7** G1: 47 G2: 46 G3: 44	**Overall: 71.3%** G1: 72% G2: 62% G3: 80%	NR	NR
Groessl, 2017	**Total: 150** G1: 75 G2: 75	United States	Chronic LBP	**Overall: 53.5** G1: 53 G2: 54	**Overall: 26%** G1: 27% G2: 25%	**Overall: 20%** G1: 20% G2: 20%	**Overall: 8.1%** *African American:* Overall: 17% G1: 21% G2: 13% *Asian/Pacific Islander:* Overall: 6% G1: 4% G2: 8% *Native American:* Overall: 1.3% G1: 1.3% G2: 1.3%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Highland, 2017	**Total: 68** G1: 34 G2: 34	United States	LBP (Department of Defense)	**Overall: 44** G1: NR G2: NR	**Overall: 63%** G1: NR G2: NR	NR	**Overall: 22%** *Black:* Overall: 22% G1: NR G2: NR *Not Reported:* Overall: 15% G1: NR G2: NR
Nambi, 2014	**Total: 60** G1: 30 G2: 30	India	Nonspecific LBP	**Overall: 43.5** G1: 44 G2: 43	**Overall: 53%** G1: 63% G2: 43%	NR	NR
Saper, 2017	**Total: 320** G1: 127 G2: 129 G3: 64	United States	Nonspecific LBP	**Overall: 45.3** G1: 46 G2: 46 G3: 44	**Overall: 64.3%** G1: 57% G2: 70% G3: 66%	NR	**Overall: 17.7%** G1: 20% G2: 16% G3: 17%
Sherman, 2005	**Total: 101** G1: 36 G2: 35 G3: 30	United States	Primary care visit for back pain	**Overall: 43.7** G1: 44 G2: 42 G3: 45	**Overall: 66.3%** G1: 69% G2: 63% G3: 67%	NR	**Overall: 20.7%** G1: 17% G2: 15% G3: 30%
Sherman, 2011	**Total: 213** G1: 92 G2: 91 G3: 30	United States	ICD-9 diagnosis of nonspecific LBP	**Overall: 48.7** G1: 47 G2: 49 G3: 50	**Overall: 63.3%** G1: 67% G2: 63% G3: 60%	NR	**Overall: 11%** G1: 13% G2: 16% G3: 4%
Tilbrook, 2011	**Total: 313** G1: 156 G2: 157	United Kingdom	LBP	**Overall: 46** G1: 46 G2: 46	**Overall: 70.5%** G1: 68% G2: 73%	NR	NR
Williams, 2005	**Total: 60** G1: 30 G2: 30	United States	Nonspecific LBP	**Overall: 48.5** G1: 49 G2: 48	**Overall: 67.5%** G1: 65% G2: 70%	NR	**Overall: 9%** G1: 10% G2: 8%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Williams, 2009	**Total: 90** G1: 43 G2: 47	United States	LBP	**Overall: 48** G1: 48 G2: 48	**Overall: 76.5%** G1: 74% G2: 79%	NR	**Overall: 14%** G1: 14% G2: 0%

Key Question #1: Chronic Low Back Pain (Mind-Body Practices – Qigong)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Blodt, 2015	**Total: 127** G1: 64 G2: 63	Germany	LBP	**Overall: 47** G1: 46 G2: 48	**Overall: 80.5%** G1: 91% G2: 70%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #1: Chronic Low Back Pain (Acupuncture)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Brinkhaus, 2006a	**Total: 210** G1: 140 G2: 70	Germany	Chronic LBP	**Overall: 58.5** G1: 59 G2: 58	**Overall: 69.5%** G1: 64% G2: 75%	NR	NR
Carlsson, 2001	**Total: 50** G1: 34 G2: 16	Sweden	Lumbar or lumbosacral LBP	**Overall: 50** G1: NR G2: NR	**Overall: 66%** G1: NR G2: NR	NR	NR
Cherkin, 2001	**Total: 184** G1: 94 G2: 90	United States	Primary care visit for LBP	**Overall: 49** G1: 54 G2: 44	**Overall: 48%** G1: 52% G2: 44%	NR	**Overall: 14.5%** G1: 18% G2: 11%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Cherkin, 2009	**Total: 638** G1: 157 G2: 158 G3: 162 G4: 161	United States	Nonspecific, uncomplicated LBP	**Overall: 47.25** G1: 47 G2: 49 G3: 47 G4: 46	**Overall: 62%** G1: 68% G2: 56% G3: 60% G4: 64%	**Overall: 8%** G1: 7% G2: 9% G3: 8% G4: 8%	**Overall: 15.9%** *Other:* Overall: 23.8% G1: 26% G2: 22% G3: 20% G4: 27%
Cho, 2013	**Total: 116** G1: 57 G2: 59	Korea	Chronic LBP	**Overall: 42** G1: 42 G2: 42	**Overall: 84.5%** G1: 83% G2: 86%	NR	NR
Haake, 2007	**Total: 1,162** G1: 387 G2: 387 G3: 388	Germany	LBP	**Overall: 50** G1: 50 G2: 49 G3: 51	**Overall: 59.7%** G1: 57% G2: 64% G3: 58%	NR	NR
Kerr, 2003	**Total: 46** G1: 26 G2: 20	United Kingdom	LBP with or without leg pain	**Overall: 43** G1: 43 G2: 43	**Overall: 42.5%** G1: 50% G2: 35%	NR	NR
Thomas, 2006	**Total: 215** G1: 147 G2: 68	United Kingdom	Nonspecific LBP	**Overall: 43** G1: 42 G2: 44	**Overall: 60%** G1: 62% G2: 58%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #1: Chronic Low Back Pain (Multidisciplinary Rehabilitation)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Abbasi, 2012	**Total: 23** G1: 12 G2: 11	Iran	Married patients with chronic LBP	**Overall: 45** G1: NR G2: NR	**Overall: 88%** G1: NR G2: NR	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Bendix, 1995, 1997, 1998	**Total: 132** G1: 46 G2: 43 G3: 43	Denmark	Chronic LBP	**Overall: 42** G1: 40 G2: 44 G3: 42	**Overall: 75.3%** G1: 75% G2: 77% G3: 74%	NR	NR
Bendix, 1996, 1998	**Total: 106** G1: 55 G2: 51	Denmark	Disabling LBP	**Overall: 40.5** G1: 41 G2: 40	**Overall: 70%** G1: 71% G2: 69%	NR	NR
Bendix, 2000	**Total: 127** G1: 59 G2: 68	Denmark	Chronic LBP	**Overall: 41.5** G1: 40 G2: 43	**Overall: 65.5%** G1: 66% G2: 65%	NR	NR
Harkapaa, 1989	**Total: 459** G1: 156 G2: 150 G3: 153	Finland	Chronic or recurrent LBP	**Overall: 45** G1: 45 G2: 45 G3: 45	**Overall: 37%** G1: 37% G2: 39% G3: 35%	NR	NR
Jousset, 2004	**Total: 86** G1: 44 G2: 42	France	LBP	**Overall: 40.5** G1: 41 G2: 40	**Overall: 33.5%** G1: 30% G2: 37%	NR	NR
Lambeek, 2010	**Total: 67** G1: 66 G2: 68	The Netherlands	LBP	**Overall: 46.5** G1: 46 G2: 47	**Overall: 42%** G1: 44% G2: 40%	NR	NR
Monticone, 2013	**Total: 90** G1: 45 G2: 45	Italy	Nonspecific LBP	**Overall: 49.5** G1: 49 G2: 50	**Overall: 58%** G1: 60% G2: 56%	NR	NR
Monticone, 2014	**Total: 20** G1: 10 G2: 10	Italy	Nonspecific chronic LBP	**Overall: 58** G1: 59 G2: 57	**Overall: 5.5%** G1: 7% G2: 4%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Nicholas, 1991	**Total: 58** G1: 10 G2: 10 G3: 8 G4: 9 G5: 10 G6: 11	Australia	Chronic nonspecific LBP	**Overall: 41** G1: NR G2: NR G3: NR G4: NR G5: NR G6: NR	NR	NR	NR
Nicholas, 1992	**Total: 20** G1: 10 G2: 10	Australia	Chronic nonmalignant LBP	**Overall: 44** G1: NR G2: NR	**Overall: 45%** G1: NR G2: NR	NR	NR
Roche, 2007, 2011	**Total: 132** G1: 68 G2: 64	France	Chronic nonspecific LBP	**Overall: 40** G1: 41 G2: 39	**Overall: 35%** G1: 32.4% G2: 37.5%	NR	NR
Strand, 2001	**Total: 117** G1: 81 G2: 36	Norway	LBP	**Overall: 43.5** G1: 45 G2: 42	**Overall: 61.5%** G1: 59% G2: 64%	NR	NR
Tavafian, 2008	**Total: 74** G1: 37 G2: 37	Iran	Chronic LBP	**Overall: 44** G1: 43 G2: 45	**Overall: 100%**	NR	NR
Turner, 1990	**Total: 48** G2: 24 G3: 24	United States	Chronic LBP	**Overall: 44** G2: NR G3: NR	**Overall: 48%** G2: NR G3: NR	NR	NR
Van der Roer, 2008	**Total: 114** G1: 60 G2: 54	The Netherlands	Nonspecific LBP	**Overall: 42** G1: 42 G2: 42	**Overall: 51.5%** G1: 55% G2: 48%	NR	*Non-European Immigrant:* **Overall: 54%** G1: 47% G2: 61%
Von Korff, 2005	**Total: 240** G1: 119 G2: 121	United States	Back pain	**Overall: 50** G1: 50 G2: 50	**Overall: 62.5%** G1: 65% G2: 60%	NR	**Overall: 16.5%** G1: 16% G2: 17%

Note. G – Group; NR – Not reported.

Key Question #2: Chronic Neck Pain (Exercise)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Andersen, 2008	**Total: 182** G1: 61 G2: 59 G3: 62	Denmark	Office workers with neck pain	**Overall: 45** G1: NR G2: NR G3: NR	**Overall: 78%** G1: NR G2: NR G3: NR	NR	NR
Aslan Telci, 2012	**Total: 40** G1: 20 G2: 20	Turkey	Cervical arthritis	**Overall: 50** G1: 48 G2: 52	**Overall: 80%** G1: 85% G2: 75%	NR	NR
de Araujo Cazotti, 2018	**Total: 64** G1: 32 G2: 32	Brazil	Chronic neck pain	**Overall: 49** G1: 49 G2: 49	**Overall: 22%** G1: 19% G2: 25%	NR	NR
Lauche, 2016	**Total: 114** G1: 38 G2: 37 G3: 39	Germany	Chronic nonspecific neck pain	**Overall: 49.3** G1: 52 G2: 47 G3: 49	**Overall: 80.7%** G1: 74% G2: 86% G3: 82%	NR	NR
Li, 2017	**Total: 109** G1: 38 G2: 35 G3: 36	China	Daily computer user with constant or frequent occurring computer-related neck pain	**Overall: 34.7** G1: 36 G2: 34 G3: 34	NR	NR	NR
Stewart, 2007	**Total: 125** G1: 63 G2: 62	Australia	Whiplash-associated disorder	**Overall: 43.5** G1: 44 G2: 43	**Overall: 67.5%** G1: 73% G2: 62%	NR	NR
Viljanen, 2003	**Total: 265** G1: 135 G3: 130	Finland	Chronic nonspecific neck pain	**Overall: 44.5** G1: 45 G3: 44	**Overall: 100%**	NR	NR
Waling, 2002	**Total: 103** G1: 29 G2: 28 G3: 25 G4: 21	Sweden	Work-related pain	**Overall: 38.5** G1: 38 G2: 39 G3: 38 G4: 39	**Overall: 100%**	NR	NR

Note. G – Group; NR – Not reported.

Key Question #2: Chronic Neck Pain (Psychological Therapies)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Viljanen, 2003	**Total: 258** G2: 128 G3: 130	Finland	Chronic nonspecific neck pain	**Overall: 43.5** G2: 43 G3: 44	**Overall: 100%**	NR	NR

Note. G – Group; NR – Not reported.

Key Question #2: Chronic Neck Pain (Physical Modalities – Traction)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Chiu, 2011	**Total: 73** G1: 39 G2: 34	Hong Kong	Neck pain	**Overall: 48.9** G1: 50.9 G2: 46.8	**Overall: 70.9%** G1: 65.2% G2: 76.5%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #2: Chronic Neck Pain (Manual Therapies – Massage)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Pach, 2018	**Total: 92** G1: 46 G2: 46	Germany	Chronic neck pain	**Overall: 45.5** G1: 46 G2: 45	**Overall: 87%** G1: 89.1% G2: 84.8%	NR	NR
Rudolfsson, 2014	**Total: 85** G1: 28 G2: 28 G3: 29	Sweden	Chronic nonspecific neck pain	**Overall: 51.3** G1: 51 G2: 52 G3: 51	**Overall: 100%**	NR	NR
Sherman, 2009	**Total: 58** G1: 30 G2: 28	United States	Neck pain	**Overall: 46.5** G1: 47 G2: 46	**Overall: 69%** G1: 69% G2: 69%	NR	**Overall: 16%** G1: 13% G2: 19%

Note. G – Group; NR – Not reported.

Key Question #2: Chronic Neck Pain (Mind-Body Practices)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Lansinger, 2007	**Total: 139** G1: 72 G2: 67	Sweden	Nonspecific neck pain	**Overall: 44** G1: 45 G2: 43	**Overall: 70%** G1: 73% G2: 67%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
MacPherson, 2015/Essex, 2017	**Total: 343** G2: 172 G3: 171	United Kingdom	Neck pain	**Overall: 54** G2: 54 G3: 54	**Overall: 69.7%** G2: 70% G3: 69%	NR	**Overall: 11%** G2: 11% G3: 11%
Seferiadis, 2015	**Total: 113** G1: 57 G2: 56	Sweden	Whiplash injury	**Overall: 48** G1: 47 G2: 49	**Overall: 71.5%** G1: 66% G2: 77%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #2: Chronic Neck Pain (Acupuncture)

Author, year	Sample Size	Country/Region	Diagnosis/Population	Mean Age	% Female	% Hispanic/ Latino/ a/x	% Nonwhite
Birch, 1998	**Total: 36** G1: 11 G2: 13 G3: 12	United States	Chronic myofascial neck pain	**Overall: 39.3** G1: 41 G2: 38 G3: 39	**Overall: 83%** G1: 86% G2: 77% G3: 86%	NR	NR
Cho, 2014	**Total: 45** G1: 15 G2: 15 G3: 15	Korea	Neck pain or stiffness	**Overall: 38.7** G1: 39 G2: 38 G3: 39	**Overall: 64.3%** G1: 53% G2: 60% G3: 80%	NR	NR
Ho, 2017	**Total: 154** G1: 77 G2: 77	China	Neck pain, stiffness, or tenderness around the neck	**Overall: 45.5** G1: 46 G2: 45	**Overall: 82%** G1: 81% G2: 83%	NR	NR
Liang, 2011	**Total: 178** G1: 88 G2: 90	China	Neck and shoulder pain or stiffness	**Overall: 37** G1: 37 G2: 37	**Overall: 72.5%** G1: 72% G2: 73%	NR	NR
MacPherson, 2015/Essex, 2017	**Total: 344** G1: 173 G3: 171	United Kingdom	Neck pain	**Overall: 53** G1: 52 G3: 54	**Overall: 69%** G1: 69% G3: 69%	NR	**Overall: 9%** G1: 7% G3: 11%

Author, year	Sample Size	Country/Region	Diagnosis/Population	Mean Age	% Female	% Hispanic/Latino/a/x	% Nonwhite
Sahin, 2010	**Total: 29** G1: 13 G2: 16	Turkey	Chronic soft tissue neck pain	**Overall: 37** G1: 39 G2: 35	**Overall: 45.5%** G1: 100% G2: 81%	NR	NR
Vas, 2006	**Total: 85** G1: 45 G2: 40	Spain	Symptomatic uncomplicated neck pain	**Overall: 46.5** G1: 46 G2: 47	**Overall: 82%** G1: 75% G2: 89%	NR	NR
White, 2004	**Total: 135** G1: 70 G2: 65	United Kingdom	Chronic mechanical neck pain	**Overall: 53.5** G1: 54 G2: 53	**Overall: 64.5%** G1: 66% G2: 63%	NR	NR
Zhang, 2013	**Total: 160** G1: 84 G2: 76	Hong Kong	Chronic mechanical neck pain	**Overall: 46** G1: NR G2: NR	**Overall: 70%** G1: NR G2: NR	NR	NR

Note. G – Group; NR – Not reported.

Key Question #3: Osteoarthritis Knee Pain (Exercise)

Author, year	Sample Size	Country/Region	Diagnosis/Population	Mean Age	% Female	% Hispanic/Latino/a/x	% Nonwhite
Abbott, 2013	**Total: 57** G2: 29 G3: 28	New Zealand	Hip or knee osteoarthritis	**Overall: 66.5** G2 (overall): 67 G3 (overall): 66	**Overall: 55%** G2 (overall): 52% G3 (overall): 58%	NR	NR
Allen, 2018	**Total: 350** G1: 140 G2: 142 G3: 68	United States	Osteoarthritis knee pain	**Overall: 65** G1: 66 G2: 65 G3: 64	**Overall: 72.7%** G1: 71% G2: 69% G3: 78%	NR	**Overall: 27.3%** G1: 21% G2: 34% G3: 27%
Bennell, 2005	**Total: 140** G1: 73 G2: 67	Australia	Knee pain	**Overall: 68.5** G1: 67 G2: 70	**Overall: 67%** G1: 68% G2: 66%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Chen, 2014	**Total: 60** G1: 30 G2: 30	Taiwan	Bilateral moderate knee osteoarthritis	**Overall: 63** G1: NR G2: NR	**Overall: 85%** G1: NR G2: NR	NR	NR
Dias, 2003	**Total: 50** G1: 25 G2: 25	Brazil	Knee osteoarthritis	**Overall: 75** G1: 74 G2: 76	**Overall: 88%** G1: 84% G2: 92%	NR	NR
Ettinger, 1997	**Total: 439** G1: 144 G2: 146 G3: 149	United States	Knee pain	**Overall: 65.3** G1: 69 G2: 58 G3: 69	**Overall: 70.3%** G1: 69% G2: 73% G3: 69%	NR	**Overall: 78%** *African American:* Overall: 78% G1: 24% G2: 28% G3: 26%
Pennix, 2001	**Total: 250** G1: 88 G2: 82 G3: 80	United States	Knee pain	**Overall: 69.3** G1: 70 G2: 69 G3: 69	**Overall: 68%** G1: 66% G2: 72% G3: 66%	NR	**Overall: 74%** *African American:* Overall: 74% G1: 25% G2: 21% G3: 28%
Pennix, 2002	**Total: 439** G1: 149 G2: 146 G3: 144	United States	Knee pain	**Overall: 69** G1: NR G2: NR G3: NR	**Overall: 70%** G1: NR G2: NR G3: NR	NR	NR
Holsgaard-Larsen, 2017/2018	**Total: 93** G1: 47 G2: 46	Denmark	Knee osteoarthritis pain	**Overall: 58** G1: 58 G2: 58	**Overall: 58%** G1: 62% G2: 54%	NR	NR
Huang, 2003	**Total: 132** G1: 33 G2: 33 G3: 33 G4: 33	Taiwan	Moderate bilateral knee osteoarthritis	**Overall: 62 (range 45-77 years)** G1: NR G2: NR G3: NR G4: NR	**Overall: 70%** G1: NR G2: NR G3: NR G4: NR	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Huang, 2005a	**Total: 70** G1: 35 G2: 35	Taiwan	Moderate bilateral knee osteoarthritis	**Overall: 65 (range 40-77 years)** G1: NR G2: NR	**Overall: 81%** G1: NR G2: NR	NR	NR
Huang, 2005b	**Total: 60** G1: 30 G2: 30	Taiwan	Moderate bilateral knee osteoarthritis	**Overall: 62 (range 42-72 years)** G1: NR G2: NR	**Overall: 81%** G1: NR G2: NR	NR	NR
Lund, 2008	**Total: 79** G1: 27 G2: 25 G3: 27	Denmark	Knee osteoarthritis pain	**Overall: 67.7** G1: 65 G2: 68 G3: 70	**Overall: 79%** G1: 83% G2: 88% G3: 66%	NR	NR
Mat, 2017	**Total: 41** G1: 17 G2: 24	Malaysia	Knee osteoarthritis pain	**Overall: 74** G1: 76 G2: 72	**Overall: 82.4%** G1: 82.4% G2: 82.4%	NR	**Overall: 25.6%** *Malay:* Overall: 17.2% G1: 17.6% G2: 16.7% *Chinese:* Overall: 59% G1: 47.1% G2: 70.8% *Indian:* Overall: 21.8% G1: 35.3% G2: 8.3% *Others:* Overall: 4.2% G1: 0% G2: 4.2%
Messier, 2004	**Total: 158** G1: 80 G2: 78	United States	Knee pain (BMI greater or equal to 28)	**Overall: 69** G1: 69 G2: 69	**Overall: 71%** G1: 74% G2: 68%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Quilty, 2003	**Total: 83** G1: 40 G2: 43	United Kingdom	Chronic knee pain	**Overall: 71** G1: 69 G2: 73	NR	NR	NR
Rejeski, 2002	**Total: 278** G1: 68 G2: 73 G3: 69 G4: 68	United States	Knee pain (BMI greater than or equal to 28)	**Overall: 68.52** G1: 68.59 G2: 68.09 G3: 68.96 G4: 68.46	**Overall: 71.97%** G1: 66.67% G2: 74.07% G3: 73.75% G4: 73.33%	NR	**Overall: 24.01%** *Other:* Overall: 24.01% G1: 20.27% G2: 29.11% G3: 23.38% G4: 22.97%
de Rooij, 2017	**Total: 126** G1: 63 G2: 63	The Netherlands	Knee osteoarthritis	**Overall: 63.5** G1: 63 G2: 64	**Overall: 75.5%** G1: 78% G2: 73%	NR	NR
Rosedale, 2014	**Total: 180** G1: 120 G2: 60	Canada	Knee pain	**Overall: 65** G1: 66 G2: 64	**Overall: 58%** G1: 56% G2: 60%	NR	NR
Segal, 2015	**Total: 42** G1: 24 G2: 18	United States	Knee osteoarthritis	**Overall: 69.5** G1: 70 G2: 69	**Overall: 64.5%** G1: 76% G2: 53%	NR	NR
Sullivan, 1998	**Total: 102** G1: 52 G2: 50	United States	Knee osteoarthritis	**Overall: 69.5** G1: 71 G2: 68	**Overall: 83.5%** G1: 77% G2: 90%	NR	NR
Thomas, 2002	**Total: 786** G1: 470 G2: 316	United Kingdom	Knee pain	**Overall: 62** G1: 62 G2: 62	**Overall: 64.5%** G1: 63% G2: 66%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Thorstensson, 2005	**Total: 61** G1: 30 G2: 31	Sweden	Osteoarthritis	**Overall: 56** G1: 55 G2: 57	**Overall: 51%** G1: 50% G2: 52%	NR	NR
Waller, 2017	**Total: 87** G1: 43 G2: 44	Finland	Mild knee osteoarthritis	**Overall: 64** G1: 64 G2: 64	**Overall: 100%**	NR	NR
Weng, 2009	**Total: 66** G1: 33 G2: 33	Taiwan	Bilateral, moderate knee osteoarthritis	**Overall: 64** G1: NR G2: NR	**Overall: 75%** G1: NR G2: NR	NR	NR
Williamson, 2007	**Total: 181** G1: 60 G2: 60 G3: 61	United Kingdom	Knee pain / osteoarthritis	**Overall: 70.6** G1: 72 G2: 70 G3: 70	**Overall: 53.7%** G1: 55% G2: 52% G3: 54%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #3: Osteoarthritis Knee Pain (Psychological Therapy)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Bennell, 2016	**Total: 149** G1: 74 G2: 75	Australia	Knee osteoarthritis pain	**Overall: 63** G1: 63 G2: 63	**Overall: 60%** G1: 61% G2: 59%	NR	NR
Gilbert, 2018	**Total: 155** G1: 76 G2: 79	United States	Symptomatic knee pain, aching, or stiffness	**Overall: 63** G1: 61 G2: 65	**Overall: 60%** G1: 58% G2: 62%	NR	**Overall: 48%** G1: 55% G2: 41%
Helminen, 2015	**Total: 111** G1: 55 G2: 56	Finland	Knee osteoarthritis	**Overall: 63.8** G1: 64.5 G2: 63	**Overall: 70%** G1: 71% G2: 68%	NR	NR
O'Moore, 2018	**Total: 67** G1: 43 G2: 24	Australia	Symptomatic knee osteoarthritis	**Overall: 61.5** G1: 63 G2: 60	**Overall: 77%** G1: 86% G2: 68%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Somers, 2012	**Total: 111** G1: 60 G2: 51	United States	Knee pain	**Overall: 58** G1: 58 G2: 58	**Overall: 66%** G1: 67% G2: 68%	NR	**Overall: 61.5%** G1: 62% G2: 61%

Note. G – Group; NR – Not reported.

Key Question #3: Osteoarthritis Knee Pain (Manual Therapies)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Abbott, 2013	**Total: 58** G1: 30 G3: 28	New Zealand	Hip or knee osteoarthritis	**Overall: 66.5** G1 (overall): 67 G3 (overall): 66	**Overall: 53.5%** G1 (overall): 49% G3 (overall): 58%	NR	NR
Perlman, 2012	**Total: 439** G1: 149 G2: 146 G3: 144	United States	Knee osteoarthritis	**Overall: 69** G1: NR G2: NR G3: NR	**Overall: 70%** G1: NR G2: NR G3: NR	NR	NR

Note. G – Group; NR – Not reported.

Key Question #3: Osteoarthritis Knee Pain (Mind-Body Therapies)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Brismee, 2007	Total: 31 G1: 18 G2: 13	United States	Knee pain	Overall: 70 G1: 71 G2: 69	Overall: 82.7% G1: 86.4% G2: 78.9%	NR	NR
Wang, 2009	Total: 40 G1: 20 G2: 20	United States	Knee osteoarthritis pain	Overall: 65.5 G1: 63 G2: 68	Overall: 75% G1: 80% G2: 70%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #3: Osteoarthritis Knee Pain (Acupuncture)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Berman, 1999	**Total: 73** G1: 37 G2: 36	United States	Knee osteoarthritis pain	**Overall: 66** G1: 66 G2: 66	**Overall: 59.5%** G1: 47% G2: 72%	NR	**Overall: 17%** G1: 8% G2: 26%
Berman, 2004	**Total: 369** G1: 186 G2: 183	United States	Knee osteoarthritis pain	**Overall: 65.7** G1: 65.2 G2: 66.2	**Overall: 62.5%** G1: 63.2% G2: 61.8%	NR	**Overall: 30%** G1: 30% G2: 29.3%
Hinman, 2014	**Total: 282** G1: 70 G2: 71 G3: 71 G4: 70	Australia	Knee pain	**Overall: 63.5** G1: 64 G2: 63 G3: 63 G4: 64	**Overall: 49.3%** G1: 46% G2: 39% G3: 56% G4: 56%	NR	NR
Jubb, 2008	**Total: 68** G1: 34 G2: 34	United Kingdom	Knee osteoarthritis pain	**Overall: 65.1** G1: 64.1 G2: 66.1	**Overall: 80.5%** G1: 85% G2: 76%	NR	**Overall: 20.5%** G1: 26% G2: 15%
Lansdown, 2009	**Total: 30** G1: 15 G2: 15	United Kingdom	Knee pain	**Overall: 63.5** G1: 63 G2: 64	**Overall: 60%** G1: 60% G2: 60%	NR	**Overall: 0%** G1: 0% G2: 0%
Suarez-Almazo, 2010	**Total: 455** G1: 153 G2: 302	United States	Knee osteoarthritis pain	**Overall: 64.4** G1: 64.5 G2: 64.5 G3: 64.1	**Overall: 63.1%** G1: 66% G2: 65% G3: 58.3%	NR	**Overall: 32.2%** G1: 30% G2: 32% G3: 34.7%
Williamson, 2007	**Total: 181** G1: 60 G2: 60 G3: 61	United Kingdom	Knee osteoarthritis pain	**Overall: 70.7** G1: 72 G2: 70 G3: 70	**Overall: 53.7%** G1: 55% G2: 52% G3: 54%	NR	NR
Witt, 2005	**Total: 224** G1: 149 G2: 75	Germany	Knee osteoarthritis pain	**Overall: 64** G1: 65 G2: 63	**Overall: 67.5%** G1: 70% G2: 65%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Yurtkuran, 2007	**Total: 52** G1: 27 G2: 25	Turkey	Knee pain	**Overall: 52.5** G1: 52 G2: 53	**Overall: 96%** G1: 96% G2: 96%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #3: Osteoarthritis Hip Pain (Exercise)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Abbott, 2013	**Total: 45** G2: 22 G3: 23	New Zealand	Hip or knee osteoarthritis	**Overall: 66.5** G2 (overall): 67 G3 (overall): 66	**Overall: 55%** G2 (overall): 52% G3 (overall): 58%	NR	NR
Juhakoski, 2011	**Total: 113** G1: 57 G2: 56	Finland	Osteoarthritis hip pain	**Overall: 56.5** G1: 57 G2: 56	**Overall: 70%** G1: 68% G2: 72%	NR	NR
Tak, 2005	**Total: 94** G1: 45 G2: 49	The Netherlands	Osteoarthritis hip pain	**Overall: 68.5** G1: 68 G2: 69	**Overall: 67.5%** G1: 64% G2: 71%	NR	NR
Teirlinck, 2016	**Total: 203** G1: 101 G2: 102	The Netherlands	Nontraumatic hip pain	**Overall: 65.5** G1: 64 G2: 67	**Overall: 58.5%** G1: 62% G2: 55%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #3: Osteoarthritis Hip Pain (Manual Therapies)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Abbott, 2013	**Total: 47** G1: 24 G3: 23	New Zealand	Hip or knee osteoarthritis	**Overall: 66.5** G1 (overall): 67 G3 (overall): 66	**Overall: 53.5%** G1 (overall): 49% G3 (overall): 58%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Hoeksma, 2004	**Total: 109** G1: 56 G2: 53	The Netherlands	Hip osteoarthritis	**Overall: 71.5** G1: 72 G2: 71	**Overall: 70%** G1: 68% G2: 72%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #3: Osteoarthritis Hand Pain (Exercise)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Osteras, 2014	**Total: 110** G1: 46 G2: 64	Norway	Hand osteoarthritis	**Overall: 66** G1: 67 G2: 65	**Overall: 90%** G1: 89% G2: 91%	NR	NR

Note. G – Group; NR – Not reported.

Key Question #3: Osteoarthritis Hand Pain (Multidisciplinary Rehabilitation)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Stukstette, 2013	**Total: 147** G1: 75 G2: 72	The Netherlands	Hand osteoarthritis	**Overall: 59** G1: 60 G2: 58	**Overall: 17%** G1: 18% G2: 16%	NR	NR

Note. G – Group; NR – Not reported.

Geraghty et al. (2021)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Amris, 2014	**Total: 191** G1: 96 G2: 95	Denmark	Chronic widespread pain	**Overall: 44.3** G1: 44.4 G2: 44.2	**Overall: 100%**	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Astin, 2003	**Total: 128** G1: 64 G2: 64	United States	Fibromyalgia	**Overall: 47.7** G1: NR G2: NR	**Overall: 99%** G1: 100% G2: 98.4%	NR	**Overall: 25.1%** *African American:* Overall: 21.9% G1: 6.3% G2: 15.6% *Other:* Overall: 3.2% G1: 3.2% G2: 0%
Bosch Romero, 2002	**Total: 65** G1: 33 G2: 32	Spain	Fibromyalgia	**Overall: 53.5** G1: NR G2: NR	**Overall: 100%**	NR	NR
Bourgault, 2015	**Total: 58** G1: 29 G2: 29	Canada	Fibromyalgia	**Overall: 48.36** G1: 49.98 G2: 46.74	**Overall: 90%** G1: 92.9% G2: 92.9%	NR	**Overall: 3.6%** G1: 0% G2: 3.6%
Buckelew, 1998	**Total: 119** G1: 30 G2: 29 G3: 30 G4: 30	United States	Fibromyalgia	**Overall: 44** G1: 44.1 G2: 45.6 G3: 41.9 G4: 44.3	**Overall: 91%** G1: 96.6% G2: 93.3% G3: 83.3% G4: 90.0%	NR	NR
Burckhardt, 1994	**Total: 99** G1: 33 G2: 31 G3: 35	Sweden	Fibromyalgia	Unknown	**Overall: 100%**	Unknown	Unknown
Castel, 2013	**Total: 155** G1: 81 G2: 74	Spain	Fibromyalgia	**Overall: 48.9** G1: NR G2: NR	**Overall: 100%**	NR	NR
Cedraschi, 2004	**Total: 164** G1: 84 G2: 80	Switzerland	Fibromyalgia	**Overall: 49.4** G1: 48.9 G2: 49.8	**Overall: 93%** G1: 93% G2: 93%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
De Souza, 2008	**Total: 60** G1: 30 G2: 30	NR	Fibromyalgia	**Overall: 49.6** G1: NR G2: NR	**Overall: 100%**	NR	NR
Giannotti, 2014	**Total: 41** G1: 20 G2: 12	Italy	Fibromyalgia	**Overall: 52** G1: 52.8 G2: 51.3	**Overall: 93.4%** G1: 95% G2: 91.7%	NR	NR
Gowans, 1999	**Total: 41** G1: 20 G2: 21	Canada	Fibromyalgia	**Overall: 45.5** G1: 44.3 G2: 46.6	**Overall: 77.9%** G1: 70% G2: 85.7%	NR	NR
Hammond, 2006	**Total: 133** G1: 62 G2: 71	United Kingdom	Fibromyalgia	**Overall: 48.53** G1: 48.73 G2: 48.36	**Overall: 90%** G1: 92% G2: 89%	NR	NR
Hamnes, 2012	**Total: 147** G1: 75 G2: 72	Norway	Fibromyalgia	**Overall: 47.6** G1: 45.4 G2: 49.7	**Overall: 96%** G1: 92% G2: 100%	NR	NR
Hsu, 2010	**Total: 45** G1: 24 G2: 21	United States	Fibromyalgia	**Overall: 50.1** G1: NR G2: NR	**Overall: 100%**	NR	NR
Kendall, 2000	**Total: 20** G1: 10 G2: 10	Sweden	Fibromyalgia	**Overall: 46.6** G1: 46.9 G2: 46.2	**Overall: 100%**	NR	NR
King, 2002	**Total: 170** G1: 46 G2: 48 G3: 37 G4: 39	United States	Fibromyalgia	**Overall: 46.2** G1: 45.2 G2: 44.9 G3: 47.4 G4: 47.3	**Overall: 100%**	NR	NR
van Koulil, 2010	**Total: 158** G1: 39 G2: 45 G3: 29 G4: 45	The Netherlands	Fibromyalgia	**Overall: 40.9** G1: 41.1 G2: 40.9 G3: 42.3 G4: 39.4	**Overall: 93.8%** G1: 97% G2: 89% G3: 93% G4: 96%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Kristjánsdóttir, 2013a & b	**Total: 140** G1: 70 G2: 70	Norway	Chronic widespread pain (including fibromyalgia)	**Overall: 44.20** G1: 44.59 G2: 43.80	**Overall: 100%**	NR	NR
Kübra, 2013	**Total: 50** G1: 26 G2: 24	Turkey	Fibromyalgia	Unknown	NR	NR	Unknown
Lemstra, 2005	**Total: 79** G1: 43 G2: 36	Canada	Fibromyalgia	**Overall: 49.41** G1: 49.70 G2: 49.11	**Overall: 85%** G1: 86% G2: 83.3%	NR	NR
Lera, 2009	**Total: 66** G1: 35 G2: 31	Spain	Fibromyalgia	**Overall: 50.2** G1: 50.4 G2: 51.9	**Overall: 100%**	NR	NR
Lorig, 2008	**Total: 86** G1: 40 G2: 46	United States	Fibromyalgia	**Overall: 52.4** G1 (overall): 52.5 G2 (overall): 52.2	**Overall: 90.2%** G1 (overall): 90.5% G2 (overall): 89.8%	NR	**Overall: 7.7%** G1 (overall): 6.3% G2 (overall): 9.1%
Luciano, 2011	**Total: 216** G1: 108 G2: 108	Spain	Fibromyalgia	**Overall: 55.3** G1: 55.2 G2: 55.4	**Overall: 97.7%** G1: 97.2% G2: 98.1%	NR	NR
Mannerkorpi, 2000	**Total: 69** G1: 37 G2: 32	Sweden	Fibromyalgia	**Overall: 46** G1: 47 G2: 45	**Overall: 100%**	NR	NR
Mannerkorpi, 2009	**Total: 166** G1: 81 G2: 85	Sweden	Fibromyalgia and Chronic Widespread Pain	**Overall: 45.6** G1: 44.6 G2: 46.5	**Overall: 100%**	NR	NR
Martín, 2014	**Total: 153** G1: 82 G2: 71	Spain	Fibromyalgia	**Overall: 50.12** G1: 51.33 G2: 49.07	**Overall: 93.46%** G1: 92.96% G2: 93.90%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
McBeth, 2012	**Total: 442** G1: 112 G2: 109 G3: 112 G4: 109	United Kingdom	Chronic widespread pain	**Overall: 56.2** G1: 56.5 G2: 56.3 G3: 55.3 G4: 56.7	**Overall: 69.4%** G1: 69.7% G2: 71.4% G3: 66.1% G4: 70.5%	NR	NR
McVeigh, 2006	**Total: 86** G1: 42 G2: 44	United Kingdom	Fibromyalgia	Unknown	**Overall: 100%**	Unknown	Unknown
Rooks, 2007	**Total (completed): 206 (135)** G1: 55 (38) G2: 51 (35) G3: 51 (35) G4: 50 (27)	United States	Fibromyalgia	**Overall (completed): 49.8** G1: 50 G2: 48 G3: 50 G4: 51	**Overall (completed): 100%**	NR	**Overall (completed): 6.7%** *African American:* Overall: 7.3% G1: 8% G2: 11% G3: 3% G4: 7% *Other:* Overall: 6% G1: 0% G2: 6% G3: 6% G4: 0%
Salaffi, 2015	**Total: 72** G1: 36 G2: 36	Italy	Fibromyalgia	**Overall: 49** G1: 48.3 G2: 49.6	**Overall: 93%** G1: 94.4% G2: 91.7%	NR	NR
Saral, 2016	**Total (completed): 66 (59)** G1: 22 (21) G2: 22 (19) G3: 22 (19)	Turkey	Fibromyalgia	**Overall (completed): 41.7** G1: 38.3 G2: 43.2 G3: 43.7	**Overall: 100%**	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Stuifbergen, 2010	**Total (completed): 198 (187)** G1: 106 (98) G2: 92 (89)	United States	Fibromyalgia	**Overall (completed): 53.09** G1 (% age range): 20-35 yrs: 4% 36-50 yrs: 41% 51-65 yrs: 46% 66 and over: 9% G2 (% age range): 20-35 yrs: 11% 36-50 yrs: 22% 51-65 yrs: 51% 66 and over: 16%	**Overall: 100%**	**Overall: 14%** G1: 16% G2: 12%	**Overall (completed): 4%** *African American:* Overall: 3.5% G1: 5% G2: 2% *Other:* Overall: 4.5% G1: 2% G2: 7%
Tousignant-Laflamme, 2014	**Total: 74** G1: 37 G2: 37	Canada	Fibromyalgia	Unknown	NR	Unknown	Unknown
Traistaru, 2015	**Total: 36** G1: 18 G2: 18	Romania	Fibromyalgia	Unknown	**Overall: 100%**	Unknown	Unknown
Vlaeyen, 1996	**Total: 131** G1: 49 G2: 39 G3: 43	The Netherlands	Fibromyalgia	**Overall: 44** G1: 44.6 G2: 44.6 G3: 42.8	**Overall: 88%** G1: 93% G2: 87% G3: 82%	NR	NR
Williams, 2010	**Total: 118** G1: 59 G2: 59	United States	Fibromyalgia	**Overall: 50.46** G1: 50.17 G2: 50.75	**Overall: 95%** G1: 95% G2: 95%	NR	**Overall: 3%** *Other:* Overall: 3% G1: 1.7% G2: 3.4%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Musekamp, 2019	**Total: 583** G1: 281 G2: 302	Germany	Fibromyalgia	**Overall: 51.6** G1: 51.7 G2: 51.5	**Overall: 94.4%** G1: 95.4% G2: 93.4%	NR	NR
Pérez-Aranda, 2019	**Total: 225** G1: 75 G2: 75 G3: 75	Spain	Fibromyalgia	**Overall: 53.27** G1: 52.96 G2: 54.21 G3: 52.65	**Overall: 98.2%** G1: 97.3% G2: 98.7% G3: 98.7%	NR	NR
Pereira Pernambuco, 2018	**Total (completed): 58 (44)** G1: 27 (21) G2: 31 (23)	Brazil	Fibromyalgia	**Overall (completed): 49.77** G1: 51.43 G2: 48.26	**Overall: 100%**	NR	NR

Note. G – Group; NR – Not reported.

Williams et al. (2020) / Cochrane

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Alaranta, 1994	**Total: 293** G1: 152 G2: 141	Finland	Chronic LBP	**Overall: 40.5** G1: 40.5 G2: 40.4	**Overall: 54.6%** G1: 55.9% G2: 53.2%	NR	NR
Alda, 2011	**Total: 168** G1: 57 G2: 56 G3: 55	Spain	Fibromyalgia	**Overall: 46.8** G1: 46.35 G2: 47.12 G3: 47.04	**Overall: 94.7%** G1: 94.7% G2: 92.9% G3: 96.4%	NR	NR
Alonso-Fernández, 2016	**Total (completed): 101 (53)** G1: 53 (27) G2: 48 (26)	Spain	Nonmalignant pain	**Overall (completed): 83.04** G1: NR G2: NR	**Overall (completed): 78.1%** G1: NR G2: NR	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Altmaier, 1992	**Total: 45** G1: 21 G2: 24	United States	Disabled and not working due to pain	**Overall: 40** G1: 38.38 G2: 41.25	**Overall: 26.7%** G1: 13.3% G2: 13.3%	NR	NR
Barsky, 2010	**Total: 168** G1: 68 G2: 44 G3: 56	United States	Rheumatoid arthritis	**Overall: 53.4** G1: 54.3 G2: 54.0 G3: 51.9	**Overall: 86.3%** G1: 90% G2: 82% G3: 87%	NR	**Overall: 37%** *Black:* Overall: 13% G1: 9% G2: 14% G3: 16% *Other:* Overall: 24% G1: 6% G2: 11% G3: 7%
Basler, 1997	**Total: 161**	Germany	Chronic LBP or chronic headache	**Overall: 47.7**	**Overall: 64.3%**	NR	NR
Bliokas, 2007	**Total: 143** G1: 44 G2: 58 G3: 41	Australia	Chronic pain	**Overall: 45.2** G1: 46.3 G2: 45.5 G3: 43.9	**Overall: 56.4%** G1: 56.8% G2: 58.6% G3: 53.7%	NR	NR
Buckelew, 1998 (*also cited in Geraghty et al., 2021*)	**Total: 119** G1: 30 G2: 29 G3: 30 G4: 30	United States	Fibromyalgia	**Overall: 44** G1: 44.1 G2: 45.6 G3: 41.9 G4: 44.3	**Overall: 91%** G1: 96.6% G2: 93.3% G3: 83.3% G4: 90.0%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Carson, 2006	**Total: 167** G1: 46 G2: 40 G3: 38 G4: 43	United States	Rheumatoid arthritis	**Overall: 55.75** G1: NR G2: NR G3: NR G4: NR	**Overall: 82%** G1: NR G2: NR G3: NR G4: NR	NR	**Overall: 8%** *African American:* Overall: 14% G1: NR G2: NR G3: NR G4: NR *Other racial origin:* Overall: 2% G1: NR G2: NR G3: NR G4: NR
Castel, 2012	**Total: 93** G1: 30 G2: 34 G3: 29	Spain	Fibromyalgia	**Overall: 49.6** G1: 48.7 G2: 50.0 G3: 50.2	**Overall: 95.3%** G1: 100% G2: 94% G3: 96.6%	NR	NR
Castel, 2013 (*also cited in Geraghty et al., 2021*)	**Total: 155** G1: 81 G2: 74	Spain	Fibromyalgia	**Overall: 48.9** G1: NR G2: NR	**Overall: 100%**	NR	NR
Castro, 2012	**Total: 93** G1: 48 G2: 45	Brazil	Musculoskeletal pain	**Overall: 47.3** G1: 45.9 G2: 48.7	**Overall: 67.5%** G1: 100% G2: 35%	NR	NR
Chavooshi, 2016	**Total: 63** G1: 23 G2: 20 G3: 20	Iran	Medically unexplained pain	**Overall: 32.67** G1: NR G2: NR G3: NR	**Overall: 30%** G1: NR G2: NR G3: NR	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Cherkin, 2016	**Total: 342** G1: 116 G2: 113 G3: 113	United States	Chronic LBP	**Overall: 49.3** G1: 48.9 G2: 50.0 G3: 49.1	**Overall: 65.7%** G1: 77% G2: 61.2% G3: 58.9%	**Overall: 6.8%** G1: 7.1% G2: 4.3% G3: 8.9%	**Overall: 5.87%** *Asian:* Overall: 3.9% G1: 2.7% G2: 3.5% G3: 5.4% *African American:* Overall: 3.3% G1: 2.7% G2: 3.5% G3: 3.6% *Other (multiracial, not specified, missing, Native American/Pacific Islander)*: Overall: 10.4% G1: 14.6% G2: 8.7% G3: 8.0%
De Souza, 2008 (*also cited in Geraghty et al., 2021*)	**Total: 60** G1: 30 G2: 30	NR	Fibromyalgia	**Overall: 49.6** G1: NR G2: NR	**Overall: 100%**	NR	NR
Ersek, 2008	**Total: 256** G1: 133 G2: 123	United States	Chronic pain	**Overall: 82** G1: 81.9 G2: 82.1	**Overall: 84.7%** G1: 87.2% G2: 82.1%	NR	**Overall: 6.65%** G1: 6.8% G2: 6.5%
Evers, 2002	**Total: 59** G1: 30 G2: 29	The Netherlands	Rheumatoid arthritis	**Overall: 53.7** G1: 53.9 G2: 53.5	**Overall: 71%** G1: 70% G2: 72%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Ferrando, 2012	**Total: 72** G1: 41 G2: 31	Spain	Temporomandibular disorder	**Overall: 38.98** G1: 39.57 G2: 38.38	**Overall: 89%** G1: 87% G2: 91%	NR	NR
Garcia-Palacios, 2015	**Total: 61** G1: NR G2: NR	Spain	Fibromyalgia	**Overall: 50.48** G1: NR G2: NR	**Overall: 100%**	NR	**Overall: 0%**
Geraets, 2005	**Total: 176** G1: 87 G2: 89	The Netherlands	Chronic shoulder complaints	**Overall: 52.25** G1: 51.2 G2: 53.3	**Overall: 54.5%** G1: 51% G2: 58%	NR	NR
Glombiewski, 2010	**Total: 116** G1: 62 G2: 54	Germany	Musculoskeletal pain of the low back, mid back, or upper back	**Overall: 48.8** G1: 48.9 G2: 48.6	**Overall: 66.4%** G1: 66.1% G2: 66.7%	NR	NR
Greco, 2004	**Total: 92** G1: 32 G2: 33 G3: 27	United States	Systemic lupus erythematosus	**Overall: 47.3** G1: 48.2 G2: 46.7 G3: 47.0	**Overall: 94.7%** G1: 94% G2: 97% G3: 93%	NR	**Overall: 12.3%** *African American:* Overall: 21.6% G1: 28.1% G2: 18.2% G3: 18.5% *Asian:* Overall: 3.0% G1: 0.0% G2: 3.0% G3: 0.0%
Haldorsen, 1998	**Total: 469** G1: 312 G2: 157	Norway	Musculoskeletal pain	**Overall: 43** G1: 43 G2: 43	**Overall: 64%** G1: 64% G2: 62%	NR	NR
Helminen, 2015 (*also cited in AHRQ*)	**Total: 111** G1: 55 G2: 56	Finland	Knee osteoarthritis	**Overall: 63.8** G1: 64.5 G2: 63	**Overall: 70%** G1: 71% G2: 68%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Heutink, 2012	**Total: 61** G1: 31 G2: 30	The Netherlands	Chronic neuropathic pain after spinal cord injury	**Overall: 58.8** G1: NR G2: NR	**Overall: 72.3%** G1: 32.3% G2: 40%	NR	NR
Jensen, 2001	**Total: 214** G1: 63 G2: 54 G3: 49 G4: 48	Sweden	Chronic nonspecific spinal pain	**Overall: 43.3** G1: 42.5 G2: 43.3 G3: 43.8 G4: 43.9	**Overall: 55%** G1: 48% G2: 68% G3: 45% G4: 58%	NR	NR
Kääpä, 2006	**Total: 120** G1: 59 G2: 61	Finland	Nonspecific chronic LBP	**Overall: 46.3** G1: 46 G2: 46.5	**Overall: 100%**	NR	NR
Karlsson, 2015	**Total: 48** G1: 24 G2: 24	Sweden	Fibromyalgia	**Overall: 49** G1: 48.3 G2: 48.8	**Overall: 100%**	NR	NR
Keefe, 1990	**Total: 99** G1: 32 G2: 36 G3: 31	United States	Knee osteoarthritis pain	**Overall: 63.8** G1: 62.4 G2: 66.0 G3: 63.0	**Overall: 71.7%** G1: 78.1% G2: 69.4% G3: 67.7%	NR	NR
Keefe, 1996	**Total: 87** G1: 29 G2: 30 G3: 28	United States	Knee osteoarthritis pain	**Overall: 62.6** G1: 61.4 G2: 63.5 G3: 62.8	**Overall: 59.9%** G1: 51.7% G2: 60% G3: 67.9%	NR	NR
Kole-Snijders, 1999	**Total: 148** G1: 59 G2: 58 G3: 31	The Netherlands	Chronic LBP	**Overall: 39.8** G1: 39.7 G2: 39.2 G3: 41.1	**Overall: 63.5%** G1: 63% G2: 66% G3: 61%	NR	NR
Kraaimaat, 1995	**Total: 58** G1: NR G2: NR G3: NR	The Netherlands	Rheumatoid arthritis	**Overall: 57** G1: NR G2: NR G3: NR	**Overall: 68%** G1: NR G2: NR G3: NR	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Lera, 2009 (*also cited in Geraghty et al., 2021*)	**Total: 66** G1: 35 G2: 31	Spain	Fibromyalgia	**Overall: 50.2** G1: 50.4 G2: 51.9	**Overall: 100%**	NR	NR
Lindell, 2008	**Total: 125** G1: 63 G2: 62	Sweden	Chronic, nonspecific back and neck pain	**Overall: 42.6** G1: 42.2 G2: 43.0	**Overall: 54%** G1: 52% G2: 56%	NR	NR
Litt, 2009	**Total: 54** G1: NR G2: NR	United States	Bilateral or unilateral temporoman-dibular joint pain	**Overall: 41** G1: NR G2: NR	**Overall: 85.2%** G1: NR G2: NR	**Overall: 7%** G1: NR G2: NR	**Overall: 7%** G1: NR G2: NR
Luciano, 2014	**Total: 156** G1: 51 G2: 52 G3: 53	Spain	Fibromyalgia	**Overall: 48.31** G1: 48.88 G2: 47.77 G3: 48.28	**Overall: 96.2%** G1: 96.1% G2: 98.1% G3: 94.3%	NR	NR
Lumley, 2014	**Total: 254** G1: 67 G2: 59 G3: 63 G4: 65	United States	Rheumatoid arthritis	**Overall: 55.1** G1: 56 G2: 55.2 G3: 54 G4: 55.3	**Overall: 81.2%** G1: 80.6% G2: 81.2% G3: 84.1% G4: 78.8%	NR	**Overall: 15.9%** *Black:* Overall: 27.9% G1: 31.3% G2: 34.8% G3: 28.6% G4: 16.9% *Other:* Overall: 3.8% G1: 4.5% G2: 2.9% G3: 1.6% G4: 6.2%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Lumley, 2017	**Total: 230** G1: 79 G2: 75 G3: 76	United States	Fibromyalgia	**Overall: 49.13** G1: 48.98 G2: 48.13 G3: 50.28	**Overall: 93.9%** G1: 92.4% G2: 90.7% G3: 98.7%	NR	**Overall: 11.1%** *Black:* Overall: 17.8% G1: 10.1% G2: 20% G3: 23.7% *Other:* Overall: 4.3% G1: 3.8% G2: 4% G3: 5.3%
Mangels, 2009	**Total: 340** G1: 123 G2: 106 G3: 111	Germany	Musculoskel-etal disease	**Overall: 48.8** G1: 48.7 G2: 49.5 G3: 48.3	**Overall: 77.7%** G1: 78.6% G2: 78.8% G3: 75.6%	NR	NR
Martín, 2012	**Total: 110** G1: 56 G2: 54	Spain	Fibromyalgia	**Overall: 50.15** G1: 51.57 G2: 48.68	**Overall: 90.91%** G1: 91.07% G2: 90.74%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
McCrae, 2019	**Total: 113** G1: 39 G2: 37 G3: 37	United States	Comorbid chronic insomnia and fibromyalgia	**Overall: 52.65** G1: 54.13 G2: 51.54 G3: 52.27	**Overall: 97.35%** G1: 100% G2: 91.89% G3: 100%	NR	**Overall: 7.69%** *Black:* Overall: 17.74% G1: 15.38% G2: 8.11% G3: 29.73% *Native Indian/ Alaskan Native*: Overall: 2.63% G1: 2.56% G2: 0% G3: 2.7% *Biracial:* Overall: 2.7% G1: 0% G2: 0% G3: 2.7%
McCracken, 2013	**Total: 73** G1: 37 G2: 36	United Kingdom	Persistent pain of longer than 3 months	**Overall: 58** G1: NR G2: NR	**Overall: 68.5%** G1: NR G2: NR	NR	**Overall: 2.7%** G1: NR G2: NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Mishra, 2000	**Total: 94** G1: 22 G2: 23 G3: 24 G4: 25	United States	Temporomandibular disorder	**Overall: 35.76** G1: 35.55 G2: 38.13 G3: 34.21 G4: 35.24	**Overall: 81.9%** G1: 81.8% G2: 78.3% G3: 87.5% G4: 80%	**Overall: 10.6%** G1: 4.5% G2: 13% G3: 12.5% G4: 12%	**Overall: 5.3%** *African American:* Overall: 8.5% G1: 9.1% G2: 0% G3: 8.3% G4: 16% *Other:* Overall: 2.1% G1: 4.5% G2: 4.3% G3: 0% G4: 0%
Miziara, 2009	**Total: 44** G1: 24 G2: 20	Brazil	Burning mouth syndrome	**Overall: 55** G1: NR G2: NR	**Overall: 65.9%** G1: NR G2: NR	NR	NR
Monticone, 2013 (*also cited in Skelly et al., 2020*)	**Total: 90** G1: 45 G2: 45	Italy	Nonspecific LBP	**Overall: 49.5** G1: 49 G2: 50	**Overall: 58%** G1: 60% G2: 56%	NR	NR
Monticone, 2016	**Overall: 150** G1: 75 G2: 75	Italy	Nonspecific chronic LBP	**Overall: 53.5** G1: 53.2 G2: 53.8	**Overall: 61.4%** G1: 62.7% G2: 60%	NR	NR
Monticone, 2017	**Total: 170** G1: 85 G2: 85	Italy	Chronic neck pain	**Overall: 52.9** G1: 53.8 G2: 52	**Overall: 71.2%** G1: 71.8% G2: 70.6%	NR	NR
Nicassio, 1997	**Total: 71** G1: 36 G2: 35	United States	Fibromyalgia	**Overall: 53.1** G1: NR G2: NR	**Overall: 88.7%** G1: NR G2: NR	Unknown	"14% were from Hispanic Asian, or other ethnic backgrounds" (p. 2001)

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Nicholas, 2013	**Total: 141** G1: 49 G2: 53 G3: 39	Australia	Chronic noncancer pain	**Overall: 73.90** G1: 74.59 G2: 72.40 G3: 74.95	**Overall: 63%** G1: 65% G2: 70% G3: 52%	NR	NR
Parker, 1988	**Total: 83** G1: NR G2: NR G3: NR	United States	Rheumatoid arthritis	**Overall: 60.6** G1: NR G2: NR G3: NR	**Overall: 3.6%** G1: NR G2: NR G3: NR	NR	NR
Pincus, 2015	**Total: 89** G1: 45 G2: 44	United Kingdom	Chronic LBP	**Overall: 44.6** G1: 43.7 G2: 45.4	**Overall: 60.7%** G1: 60% G2: 61.2%	NR	NR
Puder, 1988	**Total: 71** G1: 31 G2: 38	United States	Chronic pain	**Overall: 52.74** G1: NR G2: NR	**Overall: 71%** G1: NR G2: NR	NR	NR
Sattell, 2012	**Total: 211** G1: 107 G2: 104	Germany	Multisomato-form disorder	**Overall: 48** G1: 47.9 G2: 48	**Overall: 66%** G1: 63% G2: 69%	NR	NR
Scheidt, 2013	**Total: 46** G1: 23 G2: 23	Germany	Fibromyalgia	**Overall: 48.77** G1: 48.70 G2: 48.83	**Overall: 100%**	NR	NR
Sharpe, 2012	**Total: 104** G1: 25 G2: 26 G3: 27 G4: 26	Australia	Rheumatoid arthritis	**Overall: 56.3** G1: 54.2 G2: 55.2 G3: 57.9 G4: 57.7	**Overall: 78%** G1: NR G2: NR G3: NR G4: NR	NR	NR
Sleptsova, 2013	**Total: 78** G1: 44 G2: 34	Switzerland	Chronic pain in Turkish patients	**Overall: 43.9** G1: 44 G2: 43.8	**Overall: 69.1%** G1: 70.5% G2: 67.6%	NR	NR

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Smeets, 2006	**Total: 223** G1: 53 G2: 58 G3: 61 G4: 51	The Netherlands	Chronic LBP	**Overall: 41.61** G1: 42.68 G2: 42.52 G3: 40.67 G4: 40.55	**Overall: 52.8%** G1: 58.5% G2: 41.4% G3: 62.3% G4: 49%	NR	NR
Somers, 2012	**Total: 232** G1: 60 G2: 59 G3: 62 G4: 51	United States	Knee osteoarthritis pain in patients with overweight or obesity	**Overall: 57.95** G1: 58.13 G2: 58.27 G3: 57.47 G4: 57.94	**Overall: 79.3%** G1: 66.7% G2: 79.7% G3: 91.9% G4: 78.4%	NR	**Overall: 38%** G1: 38% G2: 34% G3: 40% G4: 39%
Strauss, 1986	**Total: 57** G1: 20 G2: 17 G3: 20	United States	Rheumatoid arthritis	**Overall: 54** G1: 53 G2: 56 G3: 53	**Overall: 81%** G1: 75% G2: 82% G3: 85%	NR	**Overall: 25.3%** G1: 14% G2: 12% G3: 50%
Tavafian, 2011	**Total: 197** G1: 97 G2: 100	Iran	Chronic LBP	**Overall: 45.3** G1: 44.6 G2: 45.9	**Overall: 78.1%** G1: 73.2% G2: 83%	NR	NR
Thieme, 2003	**Total: 61** G1: 40 G2: 21	Germany	Fibromyalgia	**Overall: 47.56** G1: 46.61 G2: 48.51	**Overall: 100%**	NR	NR
Thieme, 2006	**Total: 125** G1: 43 G2: 42 G3: 40	Germany	Fibromyalgia	**Overall: 46.61** G1: 43.23 G2: 49.13 G3: 47.46	**Overall: 100%**	NR	NR
Thorn, 2011	**Total: 83** G1: 49 G2: 34	United States	Chronic pain	**Overall: 52.8** G1: 50.2 G2: 55.4	**Overall: 79.8%** G1: 71.4% G2: 88.2%	NR	**Overall: 79.4%** *African American:* Overall: 79.4% G1: 73.5% G2: 85.3%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Thorn, 2018	**Total: 290** G1: 98 G2: 95 G3: 97	United States	Chronic pain	**Overall: 50.6** G1: 49.7 G2: 52.2 G3: 49.9	**Overall: 70.7%** G1: 70.4% G2: 70.5% G3: 71.1%	NR	**Overall: 66.9%** *Black/African American:* Overall: 66.9% G1: 61.2% G2: 78.9% G3: 60.8%
Thorsell, 2011	**Total: 90** G1: NR G2: NR	Sweden	Chronic pain	**Overall: 46** G1: NR G2: NR	**Overall: 64.4%**	NR	NR
Turner, 1988	**Total: 81** G1: 26 G2: 30 G3: 25	United States	Chronic LBP	**Overall: 46** G1: NR G2: NR G3: NR	**Overall: 37%** G1: NR G2: NR G3: NR	NR	NR
Turner, 2006	**Total: 126** G1: 61 G2: 65	United States	Temporomandibular joint disorder	**Overall: 37.4** G1: 39.3 G2: 35.4	**Overall: 88.1%** G1: NR G2: NR	NR	**Overall: 14%**
van Eijk-Hustings, 2013	**Total: 203** G1: 108 G2: 47 G3: 48	The Netherlands	Fibromyalgia	**Overall: 41.95** G1: 41.45 G2: 41.5 G3: 42.9	**Overall: 95.99%** G1: 93.4% G2: 100% G3: 97.9%	NR	NR
van Koulil, 2010 (*also cited in Geraghty et al., 2021*)	**Total: 158** G1: 39 G2: 45 G3: 29 G4: 45	The Netherlands	Fibromyalgia	**Overall: 40.9** G1: 41.1 G2: 40.9 G3: 42.3 G4: 39.4	**Overall: 93.8%** G1: 97% G2: 89% G3: 93% G4: 96%	NR	NR
Vitiello, 2013	**Total: 367** G1: 123 G2: 122 G3: 122	United States	Comorbid insomnia and osteoarthritis pain	**Overall: 73.1** G1: 73.1 G2: 73 G3: 73.2	**Overall: 78.5%** G1: 75.6% G2: 80.3% G3: 79.5%	NR	**Overall: 8.8%** G1: 9.8% G2: 8.3% G3: 8.2%

Author, year	Sample Size	Country/ Region	Diagnosis/ Population	Mean Age	% Female	% Hispanic/ Latino/a/x	% Nonwhite
Vlaeyen, 1996 (*also cited in Geraghty et al., 2021*)	**Total: 131** G1: 49 G2: 39 G3: 43	The Netherlands	Fibromyalgia	**Overall: 44** G1: 44.6 G2: 44.6 G3: 42.8	**Overall: 88%** G1: 93% G2: 87% G3: 82%	NR	NR
Wang, 2018	**Total: 156** G1: 78 G2: 78	China	Chronic prostatitis/ chronic pelvic pain syndrome	**Overall: 37** G1: 36.4 G2: 37.5	**Overall: 0%**	NR	NR
Wiklund, 2018	**Total: 299** G1: 99 G2: 100 G3: 100	Sweden	Chronic, benign low back and/or generalized pain	**Overall (completer): 54.21** G1: NR G2: NR G3: NR	NR	NR	NR
Williams, 1996	**Total: 121** G1: 43 G2: 45 G3: 33	United Kingdom	Mixed chronic pain	**Overall: 50.1** G1: 48.7 G2: 50.4 G3: 51.1	**Overall: 53.3%** G1: 53% G2: 49% G3: 58%	NR	NR
Zautra, 2008	**Total: 143** *w/ RD:* Total: 37 G1: 6 G2: 17 G3: 14 *w/o RD:* Total: 106 G1: 41 G2: 35 G3: 30	United States	Rheumatoid arthritis w/ or w/o history of recurrent depression (RD)	**Overall: 52.41** *w/ RD:* Overall: 49.53 G1: 46.17 G2: 51 G3: 51.43 *w/o RD:* Overall: 55.28 G1: 57.29 G2: 56.11 G3: 52.43	**Overall: 73.42%** *w/ RD:* Overall: 83.37% G1: 83.3% G2: 88.2% G3: 78.6% *w/o RD:* Overall: 63.47% G1: 53.7% G2: 60% G3: 76.7%	NR	**Overall: 10.5%** *w/ RD (Other):* Overall: 9.45% G1: 0% G2: 11.8% G3: 7.1% *w/o RD (Other):* Overall: 11.5% G1: 9.8% G2: 11.4% G3: 13.3%

Note. G – Group; NR – Not reported.

APPENDIX I

APA's Search Methodology for Identifying Systematic Reviews and Meta-Analyses

Date	Search Method	Search Term(s)	# of Hits
2/12/2021	PsycNET	chronic musculoskeletal pain AND Any Field: treatment AND Any Field: therapy AND Any Field: systematic review AND Peer-Reviewed - 2016-2021	5
2/12/2021	PubMed	((((chronic musculoskeletal pain) AND (treatment)) AND (therapy)) AND (systematic review)) AND (("2016/01/01"[Date - MeSH] : "2021/02/12"[Date - MeSH]))	189
2/12/2021	Google Scholar	treatment of chronic musculoskeletal pain in adults systematic review AND 2021-2021	3,300
2/12/2021	Google Scholar	chronic musculoskeletal pain AND "treatment" AND "therapy" AND "adults" AND "systematic review" AND "2021-2021"	190
2/12/2021	PubMed	("chronic pain"[MeSH Terms]) AND ((systematicreview[Filter]) AND (humans[Filter]) AND (systematicreviews[Filter]) AND (alladult[Filter]) AND (2016:2021[pdat]))	122
2/18/2021	PubMed	(("chronic"[All Fields] OR "chronical"[All Fields] OR "chronically"[All Fields] OR "chronicities"[All Fields] OR "chronicity"[All Fields] OR "chronicization"[All Fields] OR "chronics"[All Fields]) AND ("musculoskeletal pain"[MeSH Terms] OR ("musculoskeletal"[All Fields] AND "pain"[All Fields]) OR "musculoskeletal pain"[All Fields])) AND ((systematicreview[Filter]) AND (humans[Filter]) AND (systematicreviews[Filter]) AND (alladult[Filter]) AND (2016:2021[pdat]))	55
2/18/2021	PubMed	(("chronic"[All Fields] OR "chronical"[All Fields] OR "chronically"[All Fields] OR "chronicities"[All Fields] OR "chronicity"[All Fields] OR "chronicization"[All Fields] OR "chronics"[All Fields]) AND ("musculoskeletal pain"[MeSH Terms] OR ("musculoskeletal"[All Fields] AND "pain"[All Fields]) OR "musculoskeletal pain"[All Fields]) AND ("randomized controlled trial"[Publication Type] OR "randomized controlled trials as topic"[MeSH Terms] OR "randomized controlled trials"[All Fields] OR "randomised controlled trials"[All Fields])) AND ((systematicreview[Filter]) AND (humans[Filter]) AND (systematicreviews[Filter]) AND (alladult[Filter]) AND (2016:2021[pdat]))	28
2/18/2021	PubMed	(("chronic"[All Fields] OR "chronical"[All Fields] OR "chronically"[All Fields] OR "chronicities"[All Fields] OR "chronicity"[All Fields] OR "chronicization"[All Fields] OR "chronics"[All Fields]) AND ("musculoskeletal pain"[MeSH Terms] OR ("musculoskeletal"[All Fields] AND "pain"[All Fields]) OR "musculoskeletal pain"[All Fields]) AND ("behavior"[MeSH Terms] OR "behavior"[All Fields] OR "behavioral"[All Fields] OR "behavioural"[All Fields] OR "behavior s"[All Fields] OR "behaviorally"[All Fields] OR "behaviour"[All Fields] OR "behaviourally"[All Fields] OR "behaviours"[All Fields] OR "behaviors"[All Fields] OR "pattern"[All Fields] OR "pattern s"[All Fields] OR "patternability"[All Fields] OR "patternable"[All Fields] OR "patterned"[All Fields] OR "patterning"[All Fields] OR "patternings"[All Fields] OR "patterns"[All Fields]) AND ("psychologic"[All Fields] OR "psychological"[All Fields] OR "psychologically"[All Fields] OR "psychologization"[All Fields] OR "psychologized"[All Fields] OR "psychologizing"[All Fields])) AND ((systematicreview[Filter]) AND (humans[Filter]) AND (systematicreviews[Filter]) AND (alladult[Filter]) AND (2016:2021[pdat]))	10

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2/18/2021	PubMed	("pain management/methods"[MeSH Major Topic]) AND ((meta-analysis[Filter] OR systematicreview[Filter]) AND (humans[Filter]) AND (systematicreviews[Filter]) AND (alladult[Filter]) AND (2016:2021[pdat]))	78
2/18/2021	PsycNET	Any Field: chronic pain AND Any Field: treatment AND Any Field: therapy AND Any Field: systematic review AND Age Group: Adulthood (18 yrs & older) AND Peer-Reviewed Journals only AND Year: 2016 To 2021	17
2/22/2021	PubMed	((("chronic pain"[MeSH Terms] OR ("chronic"[All Fields] AND "pain"[All Fields]) OR "chronic pain"[All Fields]) AND ("psychologie"[All Fields] OR "psychologies"[All Fields] OR "psychology"[MeSH Subheading] OR "psychology"[All Fields] OR "psychology"[MeSH Terms] OR "psychology s"[All Fields]) AND ("behavior"[MeSH Terms] OR "behavior"[All Fields] OR "behavioral"[All Fields] OR "behavioural"[All Fields] OR "behavior s"[All Fields] OR "behaviorally"[All Fields] OR "behaviour"[All Fields] OR "behaviourally"[All Fields] OR "behaviours"[All Fields] OR "behaviors"[All Fields] OR "pattern"[All Fields] OR "pattern s"[All Fields] OR "patternability"[All Fields] OR "patternable"[All Fields] OR "patterned"[All Fields] OR "patterning"[All Fields] OR "patternings"[All Fields] OR "patterns"[All Fields])) AND ((y_5[Filter]) AND (meta-analysis[Filter] OR systematicreview[Filter]) AND (humans[Filter]) AND (alladult[Filter]))	41
2/25/2021	PsycNET	chronic musculoskeletal pain AND Age Group: Adulthood (18 yrs & older) AND Peer-Reviewed Journals only AND Year: 2020 To 2021	37
2/25/2021	PsycNET	chronic musculoskeletal pain AND Age Group: Adulthood (18 yrs & older) AND Peer-Reviewed Journals only AND Year: 2018 To 2021	225
2/25/2021	PsycNET	chronic musculoskeletal pain AND Any Field: systematic review AND Age Group: Adulthood (18 yrs & older) AND Peer-Reviewed Journals only AND Year: 2018 To 2021	6
2/25/2021	Google Scholar	Advanced search: "with all of the words: chronic musculoskeletal pain, systematic review" "where my words occur: anywhere in the article"; return articles dated between 2020-2021	31000
3/1/2021	PubMed	(chronic musculoskeletal pain)	7,161
3/1/2021	PubMed	Similar articles for PMID: 33064421 with filters systematic review, adult: 19+ years from 2016-2021	10
3/1/2021	PubMed	Similar articles for PMID: 32794606 (Cochrane SR on psychological therapies for chronic pain, 2020), systematic review, adults 19+ and 2016-2021	66
6/29/2021	PubMed	(("self management"[MeSH Terms] OR "self management"[All Fields] OR ("self"[All Fields] AND "management"[All Fields]) OR "self management"[All Fields]) AND (("chronic"[All Fields] OR "chronical"[All Fields] OR "chronically"[All Fields] OR "chronicities"[All Fields] OR "chronicity"[All Fields] OR "chronicization"[All Fields] OR "chronics"[All Fields]) AND ("musculoskeletal pain"[MeSH Terms] OR ("musculoskeletal"[All Fields] AND "pain"[All Fields]) OR "musculoskeletal pain"[All Fields]))) AND ((meta-analysis[Filter] OR systematicreview[Filter]) AND (2018/1/1:2021/6/29[pdat]))	12
6/29/2021	PubMed	(("chronic pain"[MeSH Terms] OR ("chronic"[All Fields] AND "pain"[All Fields]) OR "chronic pain"[All Fields]) AND ("self management"[MeSH Terms] OR "self management"[All Fields] OR ("self"[All Fields] AND "management"[All Fields]) OR "self management"[All Fields])) AND ((meta-analysis[Filter] OR systematicreview[Filter]) AND (2018/1/1:2021/6/29[pdat]))	66

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6/30/2021	PubMed	((“chronic”[All Fields] OR “chronical”[All Fields] OR “chronically”[All Fields] OR “chronicities”[All Fields] OR “chronicity”[All Fields] OR “chronicization”[All Fields] OR “chronics”[All Fields]) AND (“musculoskeletal pain”[MeSH Terms] OR (“musculoskeletal”[All Fields] AND “pain”[All Fields]) OR “musculoskeletal pain”[All Fields])) AND ((systematicreview[Filter]) AND (2021/1/1:2021/6/30[pdat]))	48
4/25/2022	PubMed	((“chronic”[All Fields] OR “chronical”[All Fields] OR “chronically”[All Fields] OR “chronicities”[All Fields] OR “chronicity”[All Fields] OR “chronicization”[All Fields] OR “chronics”[All Fields]) AND (“musculoskeletal pain”[MeSH Terms] OR (“musculoskeletal”[All Fields] AND “pain”[All Fields]) OR “musculoskeletal pain”[All Fields]) AND (“therapeutics”[MeSH Terms] OR “therapeutics”[All Fields] OR “treatments”[All Fields] OR “therapy”[MeSH Subheading] OR “therapy”[All Fields] OR “treatment”[All Fields] OR “treatment s”[All Fields])) AND ((y_1[Filter]) AND (meta-analysis[Filter] OR systematicreview[Filter]) AND (humans[Filter]) AND (alladult[Filter]))	19
4/25/2022	PubMed	((“chronic”[All Fields] OR “chronical”[All Fields] OR “chronically”[All Fields] OR “chronicities”[All Fields] OR “chronicity”[All Fields] OR “chronicization”[All Fields] OR “chronics”[All Fields]) AND (“musculoskeletal pain”[MeSH Terms] OR (“musculoskeletal”[All Fields] AND “pain”[All Fields]) OR “musculoskeletal pain”[All Fields]) AND (“therapeutics”[MeSH Terms] OR “therapeutics”[All Fields] OR “treatments”[All Fields] OR “therapy”[MeSH Subheading] OR “therapy”[All Fields] OR “treatment”[All Fields] OR “treatment s”[All Fields])) AND ((meta-analysis[Filter] OR systematicreview[Filter]) AND (humans[Filter]) AND (2021/1/1:2022/4/11[pdat]) AND (alladult[Filter]))	23
4/25/2022	PsycNET	chronic musculoskeletal pain AND Any Field: treatment AND Methodology: Systematic Review AND Methodology: Meta Analysis AND Peer-Reviewed Journals only AND Year: 2021 To 2022	5
5/5/2022	PubMed	(“chronic pain”[MeSH Terms] OR (“chronic”[All Fields] AND “pain”[All Fields]) OR “chronic pain”[All Fields]) AND ((meta-analysis[Filter] OR systematicreview[Filter]) AND (humans[Filter]) AND (2021/1/1:2022/4/11[pdat]) AND (alladult[Filter]))	178
5/5/2022	PsycNET	36 Results for Any Field: chronic pain AND Methodology: Systematic Review AND Methodology: Meta Analysis AND Peer-Reviewed Journals only AND Year: 2021 To 2022	36

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