The efficacy of non-pharmaceutical treatment of menopausal musculoskeletal symptoms: A state-of-the-art scoping review protocol

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Abstract

Objective:

The objective of this state-of-the-art scoping review is to examine the scope of the contemporary research literature evaluating the efficacy of non-pharmaceutical treatment of musculoskeletal symptoms during menopause.

Introduction:

Although recent studies and reviews often reveal the complexities of menopause symptoms, no current reviews were identified that summarise contemporary existing knowledge on the efficacy of the variety of non-pharmaceutical treatments from a symptoms-based perspective. Menopause has an adverse impact on musculoskeletal health due to reducing oestrogen, which may result in painful symptoms. The prevalence rates of musculoskeletal symptoms during menopause highlights the need for treatment efficacy. The efficacy of non-pharmaceutical treatments for musculoskeletal symptoms has not yet been fully explored in a state-of-the-art scoping review.

Inclusion criteria:

This review will consider cross-sectional, longitudinal, prospective or retrospective studies; reviews; or evidence-based syntheses/guidelines considering the efficacy of a non-pharmaceutical treatment of musculoskeletal symptoms during menopause. The inclusion criteria for article selection will be primary research presented in full text English language articles published in peer reviewed journals. During screening it will become apparent the right moment to mark the beginning of state-of-the-art thinking about the topic.

Methods:

The state-of-the-art scoping review aims to methodically explore the quantity and type of research evaluating the efficacy of non-pharmaceutical treatment of musculoskeletal symptoms during menopause. The key information sources to be searched are the Cochrane Central Register of Controlled Trials (CENTRAL); EBSCO; Web of Science; and EMBASE (Ovid). Two reviewers will screen the titles and abstracts for inclusion using the Rayyan research collaboration platform. The full text of publications meeting the inclusion criteria will be examined for eligibility. Meta-data will be extracted using a standardised template.

Keywords: State-of-the-art Scoping Review; Menopause; Non-pharmaceutical Treatment; Musculoskeletal Symptoms.

Preferred Re	porting It	tems for S	systematic	reviews and	Meta-Analy	ses extension	for Scopia	ng Review	vs (PRISMA-ScR) Checklist
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SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM		
TITLE				
Title	1	The efficacy of non-pharmaceutical treatment of menopausal musculoskeletal symptoms: A state-of-the-art scoping review protocol.		
ABSTRACT				
Structured summary	2	 Background Menopause has an adverse impact on musculoskeletal health due to reducing oestrogen which may result in painful symptoms. The prevalence rates of musculoskeletal symptoms during menopause highlights the need for treatment efficacy. The efficacy of non-pharmaceutical treatments (see Appendix A) for musculoskeletal symptoms has not yet been fully explored in a state-of-the-art scoping review. Objectives Identify what effect non-pharmaceutical treatments have on musculoskeletal symptoms for perimenopausal and menopausal patients, compared with no treatment or standard pharmaceutical treatments Examine the breadth of the discourse, documenting the quantity and type of contemporary research Synthesise the research evidence identified during the review as a narrative synthesis Eligibility criteria Primary research (cross-sectional, longitudinal, prospective or retrospective studies; reviews; or evidence-based syntheses/guidelines) examining at least one non-pharmaceutical treatment Full text English language articles Published from database inception Sources of evidence Cochrane Central Register of Controlled Trials (CENTRAL) EBSCO [AMED, MEDLINE, APA PsycInfo, SPORTDiscus with Full Text, AgeLine, CINAHL Plus with Full Text, APA PsycArticles] Web of Science 		

		EMBASE (Ovid) [AMED, Embase, Ovid Emcare, HMIC Health Management Information Consortium, Ovid MEDLINE(R) ALL, Social Policy and Practice] Charting methods Two reviewers will independently chart each eligible article using the Rayyan research collaboration platform. Any disagreements will be resolved through discussion between the two reviewers. A meta-data charting form has been jointly developed by the two reviewers to determine which variables to extract from the full text articles. The two reviewers will use this form to chart the study meta-data in an iterative process. <i>Results</i> The results will be collated and presented in a synthesis of the articles identified. <i>Conclusions</i> Conclusions will reflect on the review question and objectives.
INTRODUCTION		
Rationale	3	Although recent studies and reviews often reveal the complexities of menopause symptoms, no current reviews were identified that summarise existing knowledge on the efficacy of the variety of non-pharmaceutical treatments from a symptoms-based perspective. Efficacy across the range of non-pharmaceutical treatments for musculoskeletal symptoms has not yet been fully considered, therefore a state-of-the-art scoping review is best suited to assessing the breadth of the contemporary research evidence.
Objectives	4	 Scoping review question: What is the efficacy of non-pharmaceutical treatments for musculoskeletal symptoms during menopause? Objectives: Identify what effect non-pharmaceutical treatments have on musculoskeletal symptoms for perimenopausal and menopausal patients, compared with no treatment or standard pharmaceutical treatments Examine the breadth of the discourse, documenting the quantity and type of contemporary research Synthesise the research evidence identified during the review as a narrative synthesis

METHODS		
Protocol and registration	5	Protocol registered with protocols.io in October 2023.
Eligibility criteria	6	 To ensure that the review captures the breath of contemporary evidence, the state-of-the-art scoping review will use the following inclusion criteria: Primary research (cross-sectional, longitudinal, prospective, or retrospective studies; reviews; or evidence-based syntheses/guidelines) examining at least one non-pharmaceutical treatment Full text English language articles Published from database inception The following exclusion criteria will be applied: Non-peer reviewed research Studies or reviews considering exclusively pharmaceutical treatments Studies or reviews that do not evaluate the efficacy of treatment or therapy interventions for menopausal symptoms Research on laser therapy (due to the invasive nature of the treatment compared with other interventions)
Information sources	7	 Sources of evidence will include: Cochrane Central Register of Controlled Trials (CENTRAL) EBSCO [AMED, MEDLINE, APA PsycInfo, SPORTDiscus with Full Text, AgeLine, CINAHL Plus with Full Text, APA PsycArticles] Web of Science EMBASE (Ovid) [AMED, Embase, Ovid Emcare, HMIC Health Management Information Consortium, Ovid MEDLINE(R) ALL, Social Policy and Practice] Searches will be executed in October/November 2023.
Search	8	Titles and abstracts will be identified via the following search terms: <i>Example: EBSCO (No limits)</i> ((TI menopaus*) OR (TI perimenopaus*) OR (TI premenopaus*) OR (TI climacteri*)) AND ((TX treatment) OR (TX intervention) OR (TX therap*)) AND (TX efficacy) AND (TX symptoms) AND ((AB musculoskeletal) OR (AB joint pain) OR (AB joint stiffness) OR (AB joint aches) OR (AB muscle pain) OR (AB sarcopenia) OR (AB osteoporosis))

Selection of sources of evidence	9	Two reviewers will independently chart each eligible article using the Rayyan research collaboration platform. Articles will be screened, and their eligibility recorded. Any disagreements will be resolved through discussion between the two reviewers. Full text articles will be retrieved for all eligible records (where available).	
Data charting process	10	A meta-data charting form in Microsoft Excel has been jointly developed by the two reviewers to determine which variables to extract from the full text articles. The form will be piloted in full by the team before use. The two reviewers will use the form to chart the study meta-data in an iterative process.	
Data items	11	Meta-data items to include: • Authors • Date • Country • Musculoskeletal complaint • Treatment/Intervention • Duration of treatment • Study population and sample size • Age range • Ethnicity • Educational status • Occupational status • Type of study/Methodology • Findings • Limitations	
Critical appraisal of individual sources of evidence	12	N/A	
Synthesis of results	13	The results will be collated and presented in a synthesis of the articles identified. The conclusions will reflect on the review questions and objectives.	

RESULTS		
Selection of sources of evidence	14	A PRISMA flow chart will be used to report the number of sources of evidence screened, the number assessed for eligibility, and the number included in the review, with reasons for exclusions at each stage.
Characteristics of sources of evidence	15	For each source of evidence the article characteristics will be presented, and a citation provided.
Critical appraisal within sources of evidence	16	N/A
Results of individual sources of evidence	17	For each included source of evidence, the meta-data relevant to the review question and objectives will be charted.
Synthesis of results	18	The charted results as they relate to the review questions and objectives will be summarised.
DISCUSSION		
Summary of evidence	19	The main findings (including an overview of the types of evidence available) will be summarised and link to the review questions and objectives.
Limitations	20	The limitations of this scoping review will be documented.
Conclusions	21	A general interpretation of the results with respect to the review questions and objectives will be provided, as well as potential implications, recommendations and/or next steps.
FUNDING		
Funding	22	The authors declare that they received funding support from the Business Bridge programme (32R18P02530, Medical Research and Development Centre Phase Two).

Derived from: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

Appendix A: Treatment of Menopausal Symptoms

Several hormonal and non-hormonal pharmaceutical treatments with satisfactory to moderate levels of efficacy evidence (i.e. evidence that a treatment works or is effective) are available to treat a range of menopausal symptoms. The available non-pharmaceutical options can be subdivided into pharmacological medications (including dietary supplements, traditional herbal and botanical remedies and complementary medicines) and non-pharmacological therapies such as CBT and acupuncture (see Table 1).

Menopause Treatment Options					
Pharmaceutical treatments	Non-pharmaceutical treatments				
 Hormonal pharmaceuticals: Hormone Replacement Therapy (HRT) / Menopausal Hormone Therapy (MHT) Conjugated oestrogen Bioidenticals (17 Beta- Oestradiol; Oestrone; Oestriol; etc.) Inter Uterine Device (IUD) Non-hormonal pharmaceuticals: Clonidine Gabapentin Selective Serotonin Reuptake Inhibitors (SSRIs); Serotonin- Norepinephrine Reuptake Inhibitors (SNRIs) Selective Oestrogen Receptor Modulator (SERMs) 	 Pharmacological medications: Natural, herbal, botanical, complementary remedies and medicines: Black Cohosh (<i>Actaea/Cimicifuga racemosa</i>); Dong Quai (<i>Angelica sinensis</i>); Evening Primrose Oil (<i>Oenothera biennis</i>); etc. Phytoestrogens: Isoflavones (Soy - <i>Glycine max</i> [Genistein; Daidzein]; Red Clover - <i>Trifolium pratense</i>); Lignans (Linseed/Flaxseed - <i>Linum usitatissimum</i>); etc. Dietary Supplements: Vitamins; Minerals; Essential Fatty Acids; Antioxidants; Probiotics; etc. 	 Non-pharmacological therapies (psycho-social and behaviour modifications): Cognitive Behavioural Therapy (CBT) Clinical hypnosis Mind and body practices: Mediation; Mindfulness; etc. Exercise: Yoga; Tai chi; Qigong; High-Intensity Interval Training (HIIT); etc. Non-pharmacological therapies (other treatments): Acupuncture Reflexology Laser therapy 			

Table 1: Treatment options available to tr	reat menopausal symptoms
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