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Cognitive and Behavioral Factors Associated with Insomnia Symptoms and Subjective Sleep Quality in Peri- and Postmenopausal Women: A Systematic Review Protocol

Pereira, JAV.

Corresponding author:
José António Vieira Pereira

joseantoniovieirapereira@gmail.com

Author Affiliation:
Independent Researcher, Funchal, Madeira, Portugal.

ADMINISTRATIVE INFORMATION

Support - Not applicable. This systematic review has no external funding and will be conducted using the researcher's own resources.

Review stage at the time of initial registration - Preliminary searches.

Conflicts of interest - The author declares no conflicts of interest.

INPLASY registration number: INPLASY2026110074

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 November 2026 and was last updated on 21 November 2026.

INTRODUCTION

Review question / Objective This systematic review aims to identify and synthesize the evidence on cognitive and behavioral factors associated with insomnia symptoms and subjective sleep quality in peri- and postmenopausal women.

The review will address the following question: Which sleep-related cognitive and behavioral factors are associated with insomnia symptoms and subjective sleep quality in peri- and postmenopausal women?

Rationale This review aims to synthesise evidence on the associations between sleep-related cognitive and behavioral factors and insomnia symptoms and subjective sleep quality in peri- and postmenopausal women. The PEO (Population, Exposure, Outcome) framework was selected because it is appropriate for examining associations between exposures and health outcomes rather than intervention effectiveness (Munn et al., 2018). The synthesis will characterise the factors investigated, assessment measures, reported associations, and gaps in the evidence.

An exploratory search of the INPLASY and PROSPERO registries was conducted on 21 November 2026 to identify potentially overlapping systematic review protocols. The records examined in detail primarily addressed therapeutic or behavioral interventions. No directly overlapping protocol was identified among those assessed. These findings support the distinct observational focus of the proposed review, although the preliminary search does not exclude the existence of other relevant protocols.

Condition being studied The condition being studied is sleep disturbance, particularly insomnia symptoms and reduced subjective sleep quality, among women in perimenopause and postmenopause.

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Insomnia involves difficulties initiating or maintaining sleep, or experiencing non-restorative sleep, with associated daytime consequences. Subjective sleep quality refers to an individual's perception of their sleep.

The review focuses on the associations between these outcomes and sleep-related cognitive and behavioral factors, including dysfunctional sleep beliefs, cognitive arousal, sleep-related worry and maladaptive sleep behaviors.

METHODS

Search strategy A systematic search will be conducted in PubMed/MEDLINE, APA PsycINFO and Web of Science. Complementary searches will be performed in Google Scholar, RCAAP and university repositories to identify relevant empirical dissertations and theses.

The search strategy will combine controlled vocabulary, where available (MeSH and APA Thesaurus), and free-text terms related to the three PEO components:

Population: menopause, perimenopause, postmenopause, menopausal transition.

Exposure: dysfunctional sleep beliefs, cognitive arousal, sleep-related cognitions, sleep-related worry, maladaptive sleep behaviors.

Outcomes: insomnia, insomnia symptoms, insomnia severity, sleep quality, subjective sleep quality.

The terms will be combined using OR within each concept and AND between concepts. The following core search strategy will be adapted to the syntax of each database:

(menopaus* OR perimenopaus* OR postmenopaus* OR "menopausal transition") AND ("dysfunctional sleep beliefs" OR "cognitive arousal" OR "sleep-related cognitions" OR "sleep-related worry" OR "maladaptive sleep behaviors") AND (insomni* OR "insomnia symptoms" OR "insomnia severity" OR "sleep quality" OR "subjective sleep quality").

The search will cover publications from 1 January 2016 to 31 October 2026, in English, Portuguese or Spanish. Backward and forward citation searching will also be conducted using Web of Science and Google Scholar.

Participant or population The population will comprise women in perimenopause and postmenopause, regardless of geographical location or ethnicity.

Studies involving mixed populations will be eligible only when data for peri- and/or postmenopausal women can be identified and analyzed separately.

No geographical restrictions will be applied. Studies must investigate the association between at least one sleep-related cognitive or behavioral factor and insomnia symptoms, insomnia severity and/or subjective sleep quality in the target population.

Intervention Not applicable. This review does not evaluate interventions. It focuses on observational evidence examining sleep-related cognitive and behavioral factors, including dysfunctional sleep beliefs, cognitive arousal, sleep-related worry and maladaptive sleep behaviors.

Comparator Not applicable. No formal comparator group is required, as this review follows a PEO framework. Where available, associations across different levels or categories of sleep-related cognitive and behavioral factors will be considered within the included observational studies.

Study designs to be included Quantitative observational studies, including analytical cross-sectional studies and longitudinal studies (including cohort studies), will be included. Case-control studies, qualitative studies and intervention studies without eligible observational data will be excluded.

Eligibility criteria Studies will be eligible if they:

Include women in perimenopause and/or postmenopause, with separable data for the target population where mixed samples are used.

Examine at least one sleep-related cognitive or behavioral factor and its association with insomnia symptoms, insomnia severity and/or subjective sleep quality.

Use quantitative observational cross-sectional or longitudinal/cohort designs.

Are published between 1 January 2016 and 31 October 2026, in English, Portuguese or Spanish.

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Are original empirical research articles or empirical dissertations/theses available through university repositories.

Studies will be excluded if they do not provide separable data for the target population, do not examine the associations of interest, or are qualitative studies, case-control studies, intervention studies without eligible observational data, reviews, protocols, editorials, opinion papers or other publications without original empirical data.

Information sources The following electronic databases will be searched: PubMed/MEDLINE, APA PsycINFO and Web of Science. Complementary searches will be conducted in Google Scholar, RCAAP and university repositories to identify relevant empirical dissertations and doctoral theses. Backward citation searching (screening reference lists of included studies) and forward citation searching (identifying studies citing included studies) will also be performed using Web of Science and Google Scholar. No geographical restrictions will be applied. Searches will cover publications from 1 January 2016 to 31 October 2026, in English, Portuguese and Spanish.

Main outcome(s) The review will examine two main outcomes:

Insomnia symptoms and severity, assessed using validated instruments such as the Insomnia Severity Index (ISI) and Athens Insomnia Scale (AIS), or other relevant validated measures reported in eligible studies.

Subjective sleep quality, assessed using validated instruments such as the Pittsburgh Sleep Quality Index (PSQI) or structured sleep diaries.

The review will examine the associations between sleep-related cognitive and behavioral factors and at least one of these outcomes. Relevant statistical estimates, including correlation coefficients, regression estimates and measures of association, will be extracted where available, together with information on potential confounding variables.

Additional outcome(s) No additional outcomes have been prespecified. The review will focus exclusively on the two primary outcomes defined above: insomnia symptoms and severity, and subjective sleep quality.

Data management References retrieved from the selected databases and complementary sources will be imported into Zotero for bibliographic management and organization. Records will be organized into collections according to their information source and review status. Duplicate records will be identified and removed before screening. A structured spreadsheet will be used to document the screening process, eligibility decisions and reasons for exclusion at the full-text stage. Data from included studies will be extracted using a standardized matrix, including study characteristics, population, cognitive and behavioral factors, outcome measures, statistical findings and potential confounding variables. Methodological quality will be assessed using the relevant Joanna Briggs Institute (JBI) critical appraisal tools for analytical cross-sectional and cohort studies. Records and extracted data will be stored securely, with appropriate backups maintained by the review author.

Quality assessment / Risk of bias analysis The methodological quality and risk of bias of included studies will be assessed using the Joanna Briggs Institute (JBI) critical appraisal tools appropriate to each study design: the checklist for analytical cross-sectional studies and the checklist for cohort studies. Assessment will consider sample selection, measurement validity and reliability, identification and management of potential confounding factors, and appropriateness of statistical analyses. Each applicable item will be assessed and recorded systematically in a structured critical appraisal matrix. As the review will be conducted by a single reviewer, all methodological assessments will be performed by the review author, who will retain responsibility for the final judgements. The appraisal findings will inform the interpretation of the evidence and will be considered when discussing the strength and limitations of the included studies.

Strategy of data synthesis A narrative synthesis will be conducted to summarize and integrate the findings of the included studies. The evidence will be organized according to the cognitive and behavioral factors examined, the study design, the menopausal stage of participants (perimenopause or postmenopause), and the two primary outcomes: insomnia symptoms and severity, and subjective sleep quality. Study characteristics, assessment instruments, statistical associations and relevant confounding variables will be presented in structured tables and discussed descriptively. Where available, effect estimates and measures of statistical significance will be reported and compared. A meta-analysis is not initially planned, given the anticipated methodological and clinical heterogeneity of the studies. However, its feasibility may be reconsidered if a sufficient

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number of studies demonstrate adequate similarity in populations, exposures, outcomes and statistical measures. Any quantitative synthesis will depend on the comparability and quality of the available evidence.

Subgroup analysis No subgroup analyses are prespecified. If the number and comparability of included studies permit, exploratory subgroup analyses may be conducted according to menopausal stage (perimenopause versus postmenopause), type of sleep-related cognitive or behavioral factor, and outcome assessed. Any such analyses will be explicitly identified as exploratory and interpreted cautiously.

Sensitivity analysis No sensitivity analyses are prespecified. Their necessity and feasibility will be assessed following study selection and methodological quality appraisal. If conducted, such analyses will be explicitly identified as exploratory, appropriately justified, and reported transparently in the final review.

Language restriction English, Portuguese and Spanish.

Country(ies) involved Portugal.

Other relevant information This review focuses on observational associations between sleep-related cognitive and behavioral factors and insomnia symptoms and/or subjective sleep quality in peri- and postmenopausal women, rather than the effectiveness of therapeutic or behavioral interventions.
A preliminary search for potentially overlapping systematic review protocols was conducted in INPLASY and PROSPERO on 21 November 2026. Search terms combined menopause, insomnia, sleep quality, cognitive factors, and behavioral factors. The most focused PROSPERO search retrieved nine records. Five potentially relevant PROSPERO protocols and three INPLASY protocols were examined in detail. These reviews primarily addressed therapeutic or behavioral interventions or other outcomes, rather than the observational associations investigated in the present review. No directly overlapping protocol was identified among those examined in detail. The search was exploratory rather than exhaustive, and the search results and methodological comparisons were documented in a consolidated matrix.
Reference:
Munn, Z., Stern, C., Aromataris, E., Lockwood, C., & Jordan, Z. (2018). What kind of systematic review should I conduct? A proposed typology and guidance for systematic reviewers in the medical and health sciences. BMC Medical Research Methodology, 18, Article 5. https://doi.org/10.1186/s12874-017-0468-4
Current review status: Ongoing.

Keywords Menopause; Perimenopause; Postmenopause; Insomnia; Sleep quality; Cognitive factors; Sleep-related behaviors.

Dissemination plans The findings of this systematic review are intended to be disseminated through publication in a peer-reviewed scientific journal. The results may also be presented at scientific conferences and academic meetings in the fields of psychology, sleep medicine and women's health. The review findings may contribute to improved understanding of cognitive and behavioral factors associated with insomnia symptoms and subjective sleep quality during the menopausal transition.

Contributions of each author
Author 1 - José António Vieira Pereira. The author conceived and designed the review, developed the research question and search strategy, conducted the literature searches, will undertake study selection and data extraction, assess methodological quality, synthesize the findings, and prepare the final manuscript.
Email: joseantoniovieirapereira@gmail.com
ORCID: 0000-0002-6560-9947

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