

INPLASY PROTOCOL

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None declared.

Associations between sleep, sedentary behaviour, physical activity, and mental health outcomes: a systematic review of studies using compositional data analysis

Zeng, L¹; Liang, KX²; Bao, R³; Raoof, A⁴; Chen, ST⁵; Chi, XL⁶.

Review question / Objective: Is the composition of time spent
in sleep, sedentary behaviour, and physical activity associated
with measures of mental health or mental illness in people?

Eligibility criteria: Studies will be included if published in
English; studies will be included if quantitatively examined the
association between physical activity, sedentary behaviour,
sleep, and mental health or mental illness indicators using
compositional data analysis; studies will be included if
targeted general people.

Information sources: MEDLINE, EMBASE, PsycINFO, CINAHL,
Web of Science and SPORTDiscus.

INPLASY registration number: This protocol was registered with
the International Platform of Registered Systematic Review and
Meta-Analysis Protocols (INPLASY) on 04 February 2023 and was
last updated on 04 February 2023 (registration number
INPLASY202320018).

INTRODUCTION

Review question / Objective: Is the
composition of time spent in sleep,
sedentary behaviour, and physical activity
associated with measures of mental health
or mental illness in people?

Condition being studied: All mental health
or mental illness outcomes in general
people will be included in this review.

METHODS

Search strategy: MEDLINE, EMBASE,
CINAHL, PsycINFO, Web of Science and
SPORTDiscus.

Participant or population: General
population.

Intervention: Not applicable

Comparator: 1. Different levels of and compositions of time spent in sleep, sedentary behaviour, and physical activity of different intensities light physical activity, and moderate-to-vigorous physical activity. 2. Changes to the composition of these movement behaviours.

Study designs to be included: Observational studies (cross-sectional, cohort, panel, and retrospective studies) and cohort studies (any follow-up length allowed).

Eligibility criteria: Studies will be included if published in English; studies will be included if quantitatively examined the association between physical activity, sedentary behaviour, sleep, and mental health or mental illness indicators using compositional data analysis; studies will be included if targeted general people.

Information sources: MEDLINE, EMBASE, PsycINFO, CINAHL, Web of Science and SPORTDiscus.

Main outcome(s): The outcomes were any mental health or mental well-being or mental disorder measures, such as anxiety, depression, quality of life and subjective wellbeing. No limits were placed on specific measures.

Data management: Data management will be conducted by Endnote and Microsoft Excel.

Quality assessment / Risk of bias analysis: Using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) framework, we will systematically examine the quality of primary research contributing to each mental health or mental illness indicator and assess the overall quality and risk of bias of the evidence across mental health or mental disorder indicators. GRADE does not have an official tool for assessing risk of bias in observational studies, which is one component of the quality of evidence, but it does recommend the characteristics to examine. Joanna Briggs Institute (JBI) critical appraisal checklist will be used to

assess risk of bias in observational research. The JBI critical appraisal checklist meets the GRADE recommended characteristics and will be used in this systematic review to examine risk of bias in observational studies. In an effort to include all available evidence, study quality will not influence eligibility for inclusion.

Strategy of data synthesis: Meta-analyses are planned for results that are sufficiently homogeneous in terms of statistical, clinical, and methodological characteristics. However, if it is determined that a meta-analysis is not possible because of high levels of heterogeneity for the above characteristics across studies, systematic review with narrative syntheses will be conducted.

Subgroup analysis: Subgroup analysis will be conducted if applicable.

Sensitivity analysis: Sensitivity analysis will be conducted if applicable.

Language restriction: English.

Country(ies) involved: Australia and China.

Keywords: Time use; movement behaviours; moderate to vigorous physical activity; light physical activity; sedentary behaviour; sleep; mental health.

Contributions of each author:

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