

# INPLASY PROTOCOL

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**Support:** University of Macau.

**Review Stage at time of this submission:** The review has not yet started.

**Conflicts of interest:**  
None declared.

## Prevalence of poor sleep quality in cancer patients: a systematic review and meta-analysis

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**Review question / Objective:** Participants (P): patients with a diagnosis of any type of cancer; intervention (I): not applicable; comparison (C): healthy controls in case-control studies and cohort studies; and not applicable in cross-sectional studies without controls; outcomes (O): the prevalence of poor sleep quality or data that could calculate prevalence of poor sleep quality. Sleep quality was assessed using standardized instruments; and study design (S): cross-sectional study, case-control and cohort study (only the baseline data were extracted).

**Information sources:** Researcher will search the literature in Web of Science, PubMed, PsycINFO, and EMBASE databases.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 April 2023 and was last updated on 12 April 2023 (registration number INPLASY202340036).

## INTRODUCTION

**Review question / Objective:** Participants (P): patients with a diagnosis of any type of cancer; intervention (I): not applicable; comparison (C): healthy controls in case-control studies and cohort studies; and not

applicable in cross-sectional studies without controls; outcomes (O): the prevalence of poor sleep quality or data that could calculate prevalence of poor sleep quality. Sleep quality was assessed using standardized instruments; and study design (S): cross-sectional study, case-

control and cohort study (only the baseline data were extracted).

**Condition being studied:** Poor sleep quality is common in cancer patients, but its prevalence rate in this population has been mixed. This systematic review and meta-analysis examined the prevalence of poor sleep quality in cancer.

## METHODS

**Participant or population:** Patients with a diagnosis of any type of cancer.

**Intervention:** NA.

**Comparator:** Healthy controls in case-control studies and cohort studies; and not applicable in cross-sectional studies without controls.

**Study designs to be included:** cross-sectional study, case-control and cohort study (only the baseline data were extracted).

**Eligibility criteria:** Exclusion of special populations: minors, older adults, cancer patients using opioids.

**Information sources:** Researcher will search the literature in Web of Science, PubMed, PsycINFO, and EMBASE databases.

**Main outcome(s):** 1. The prevalence of poor sleep quality in cancer patients.  
2. The moderators of pooled prevalence of poor sleep quality in cancer patients.

**Quality assessment / Risk of bias analysis:** For cross-sectional studies without controls, study quality was assessed using a standardized instrument for epidemiological studies with the following eight items: (1) target population was defined clearly; (2) probability sampling or entire population surveyed; (3) response rate was  $\geq 80\%$ ; (4) non-responders were clearly described; (5) sample was representative of the target population; (6) data collection methods were standardized; (7) validated criteria were

used to diagnose cancer; and (8) prevalence estimates were given with confidence intervals (CIs) and detailed by subgroups (if applicable). The total score ranges from 0 to 8. Studies with a total score of “7–8” were considered as “high quality”, “4–6” as “moderate quality”, and “0–3” as “low quality”. For case-control studies and cohort studies, study quality was assessed using Newcastle-Ottawa Scale (NOS). The total score ranges from 0 to 9. Studies with a total score of “7–9” were considered as “high quality”, “4–6” as “moderate quality”, and “0–3” as “low quality”.

Publication bias was estimated with funnel plot and the Egger’s test.  $P < 0.05$  was considered as statistically significant (two-tailed).

**Strategy of data synthesis:** Meta-analyses were conducted using the R. The random-effects model was used to calculate the pooled prevalence of poor sleep quality and its 95% confidence intervals (95% CIs) or odds ratio (OR). Heterogeneity between studies was assessed with the I<sup>2</sup> statistic;  $I^2 > 50\%$  indicated high heterogeneity.

**Subgroup analysis:** Subgroup analysis (for categorical variables including region, PSQI cut-off, source of patients, income level, gender, type of cancer) and meta-regression analysis (for continuous variables including sample size, publication time, mean age, married ratio, advanced ratio, metastasis ratio, employment ratio, survival time, education, smoking ratio, alcohol using ratio, BMI, chemotherapy ratio, radiotherapy ratio, recurrence ratio, surgery ratio, depression ratio, anxiety ratio, study assessment quality) were used to investigate the source of heterogeneity and identify moderators of pooled prevalence of poor sleep quality.

**Sensitivity analysis:** Sensitivity analyses were performed to examine outlying studies by removing each study sequentially.

**Language restriction:** Articles published in English.

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**Country(ies) involved:** Macao SAR.

**Keywords:** Cancer; Meta-analysis; poor sleep quality.

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