

INPLASY

Prognostic Nutritional Index as a delirium Biomarker for critically ill Patients: A Systematic Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION

Support - No support.

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 July 2026 and was last updated on 16 July 2026.

INTRODUCTION

Review question / Objective This systematic review and meta-analysis aimed to evaluate the association between the Prognostic Nutritional Index (PNI) and the risk of delirium in critically ill patients.

Condition being studied None declared.

METHODS

Participant or population Adult critically ill patients aged 18 years and older.

Intervention PNI measured early (e.g., within 24 hours of ICU admission or preoperatively), with no restrictions on laboratory detection methods.

Comparator Studies reporting PNI as either a continuous variable or a dichotomous variable based on optimal cut-off values were eligible.

Study designs to be included Prospective and retrospective observational studies, cross-sectional study, and case-control observational studies were included.

Eligibility criteria Study inclusion and exclusion criteria were formulated based on the Population, Intervention/Exposure, Comparator, Study design (PICOS) as described above. Studies meeting any of the following conditions were excluded: animal experiments, case reports, small case series, narrative reviews, editorials, and conference abstracts lacking extractable raw data; duplicate publications or studies with overlapping patient populations; studies focusing on pediatric populations, pregnant women, or patients without critical illness; and studies unrelated to the prediction value of PNI in critically ill patients.

Information sources PubMed, Embase, and the Cochrane Library, ClinicalTrials.gov, and the World Health Organization International Clinical Trials Registry Platform.

Main outcome(s) The primary outcome was the association between PNI and delirium risk.

Quality assessment / Risk of bias analysis Study quality was independently appraised by two reviewers. Cohort studies were assessed using the Newcastle-Ottawa Scale (NOS).

Strategy of data synthesis Meta-analysis.

Subgroup analysis Subgroup analyses were conducted stratified by population, follow-up time points, data source, delirium risk, delirium assessment tool, and PNI measured timepoint.

Sensitivity analysis A leave-one-out sensitivity analysis was conducted to assess the stability of the pooled results by iteratively removing a single study and re-estimating the overall effect size.

Country(ies) involved China.

Keywords Prognostic nutritional index; critical illness; delirium; meta-analysis; intensive care unit.

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