

INPLASY

Geriatric Nutritional Risk Index (GNRI) as an Early Delirium Biomarker for critically ill Patients: A Systematic Review and Meta-Analysis

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Sciences.**ADMINISTRATIVE INFORMATION****Support** - No support.**Review Stage at time of this submission** - Data analysis.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202670053**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 GNRI and delirium risk and its predictive value in critically ill adults.

Condition being studied The research team comes from the Department of Critical Care Medicine of a tertiary hospital in China, and all the team members have perfect clinical experience in critical care and resuscitation. Moreover, our team members have published more than 50 meta-analyses, which can guarantee the successful completion of the current research.

METHODS

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

Intervention Studies providing clear GNRI measured timepoint, with no restrictions on laboratory detection methods.

Comparator Studies reporting GNRI 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 cohort designs, case-control studies, and randomized controlled trials (RCTs) focusing on critical illness.

Eligibility criteria Study inclusion and exclusion criteria were formulated based on the Population, Intervention, Comparator, and Study Design as above.

Information sources PubMed, Embase, and Cochrane Library.

Main outcome(s) The association between GNRI and delirium risk.

Quality assessment / Risk of bias analysis The risk of bias in non-randomized studies was evaluated using the Newcastle-Ottawa Scale (NOS), which appraises methodology across selection, comparability, and outcome domains (range: 0-9).

Strategy of data synthesis Meta-analysis.

Subgroup analysis Subgroup analyses were conducted stratified by population subtype, etiology, delirium risk, delirium evaluation tool, and data source.

Sensitivity analysis A “leave-one-out” sensitivity analysis was conducted by iteratively excluding individual studies and recalculating the effect sizes.

Country(ies) involved China.

Keywords Geriatric Nutritional Risk Index; critical illness; delirium; biomarker; meta-analysis; nutritional status.

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