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Does supplementation of probiotics and nutrients alleviate schizophrenia: A systematic review and meta-analysis of randomized controlled clinical trials

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ADMINISTRATIVE INFORMATION

Support - None.

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

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202510113

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 26 January 2025 and was last updated on 26 January 2025.

INTRODUCTION

Review question / Objective The effect of supplementation of probiotics and nutrients on patients with schizophrenia.

Condition being studied Effects of long-term supplementation of probiotics and nutrients on psychiatric symptom, anthropometric indicators, lipid profile, glycemic indices, inflammation, and oxidative stress in patients with schizophrenia.

METHODS

Participant or population Patients with schizophrenia.

Intervention Long-term supplementation of probiotics and nutrients.

Comparator Chronic supplementation of placebo in control group.

Study designs to be included Randomized controlled trials.

Eligibility criteria Randomized controlled trials to study the effect of long-term supplementation of probiotics and nutrients (>1 week) on psychiatric symptom, anthropometric indicators, lipid profile, glycemic indices, inflammation, and oxidative stress in patients with schizophrenia.

Information sources Systematic literature search will be conducted in Cochrane Central Registry of Controlled Trials (CENTRAL), PubMed, Web of Science, and Science Direct Online (SDOL).

Main outcome(s) Psychiatric symptom, anthropometric indicators, lipid profile, glycemic indices, inflammation, and oxidative stress.

Quality assessment / Risk of bias analysis Two researchers who have been trained in literature quality evaluation will carry out literature searching,

screening, quality evaluation, and data extraction. If any differences arise, they will be resolved through rechecking or discussion or consultation with relevant experts. The Risk of Bias 2 tool (RoB 2) from the Cochrane Collaboration will be used to assess the risk of bias of the randomized controlled studies included in this systematic review and meta-analysis.

Strategy of data synthesis The standardized mean difference (SMD) will be used to compare the continuous variables when different methods are used to evaluate the same outcome, whereas mean difference (MD) will be used when the same method is used. The SMD or MD of each outcome will be calculated using a random-effects model. The potential existence of publication bias will be determined by the Egger's test, with visual inspection of the distributions of the effect size on the funnel plot. All statistical results with P value <0.05 will be considered statistically significant.

Subgroup analysis To evaluate the effect of long-term supplementation of probiotics and nutrients on psychiatric symptom, anthropometric indicators, lipid profile, glycemic indices, inflammation, and oxidative stress in patients with schizophrenia.

Sensitivity analysis Sensitivity analysis will be performed to evaluate the influence of each study on the overall effect by eliminating them individually.

Country(ies) involved China, Italy.

Keywords Probiotics; nutrients; schizophrenia; RCTs; systematic review; meta-analysis.

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