

INPLASY PROTOCOL

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**Review Stage at time of this
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Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: What is the underlying neurophysiological mechanism of conscious emotion recognition deficits in depression?

The conscious recognition of emotion in depression disorder: A meta-analysis of neuroimaging studies

Gou, XY¹; Huang, JX²; Guo, LX³; Zhao, J; Zhong, DL⁵; Li, YX⁶; Liu XB⁷; Xia, HS⁸; Fan, J⁹; Ai, SC¹⁰; Li, HR¹¹; Li, J¹²; Jin, RJ¹³.

Review question / Objective: What is the underlying neurophysiological mechanism of conscious emotion recognition deficits in depression?

Condition being studied: The well-developed emotion recognition is a key function to support social communication. However, depression decreases the recognition accuracy of emotion, which reflects specific perceptual problems in depression. Some researches proved that depressive participants had an attentional bias to sad faces when compared to healthy controls, this bias could increase the risk for suicide. The underlying neurophysiological mechanism of conscious emotion recognition deficit in depression is still unclear. To better understand the processing of emotion recognition deficit in depression, we will use Ginger-ALE to determine the convergence of findings across experiments and evaluate altered brain region activation.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 November 2022 and was last updated on 12 November 2022 (registration number INPLASY2022110057).

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bias to sad faces when compared to healthy controls, this bias could increase the risk for suicide. The underlying neurophysiological mechanism of conscious emotion recognition deficit in depression is still unclear. To better understand the processing of emotion recognition deficit in depression, we will use Ginger-ALE to determine the convergence of findings across experiments and evaluate altered brain region activation.

METHODS

Search strategy: The initial search will be conducted from their inception onwards to retrieve relevant trials, which exploring the neuro-responses of depressive patients to explicit emotion recognition tasks. The search terms are related to depression, magnetic resonance imaging, and facial expressions recognition.

Participant or population: Participants with depression; no limitation on sex, race and age.

Intervention: Emotional faces/voices/rhythm are used as negative, positive or positive/negative affective stimuli.

Comparator: Healthy contrast.

Study designs to be included: We will only include cross-sectional studies using emotion categorization, emotion matching or emotion matching/labelling tasks. All studies are published in Chinese and English.

Eligibility criteria: (1) protocol, meeting abstracts, review and case report; (2) bipolar I disorder, subthreshold depression, postpartum depression or depression secondary to brain injury, Parkinson's Disease, Alzheimer's Disease etc.; (3) no details of diagnostic criteria; (4) duplicate articles or overlapping subjects; (5) imaging was performed via structural imaging, magnetic resonance spectroscopy and functional near-infrared spectroscopy; (6) resting-state, brain functional connectivity and brain activation-functional correlations

studies; (7) studies based on regions of interest (ROIs) analysis; (8) data could not be extracted.

Information sources: We will search Web of Science, PubMed, Cochrane, Embase, Chinese Biomedical Literature Database (CBM), China National Knowledge Infrastructure (CNKI), wanfang databases and VIP. The reference lists of relevant review articles will also be examined for possible eligible papers.

Main outcome(s): Group differences in task-related brain activity. The results will be presented in standardized stereotactic spaces (Talairach or MNI).

Quality assessment / Risk of bias analysis: Two authors will independently assess the risk of bias using a modified version of the Newcastle–Ottawa scale (NOS), The tool contains 11 methodological items involving with 4 domains (selection, comparability, exposure and Statistical analysis). Each item will be rated as “+”; “-” ; or “?” according to standards of NOS.

Strategy of data synthesis: A meta-analysis will be conducted via Ginger-ALE 2.3.6 software; Data presented in Talairach coordinates will be converted to MNI coordinates. We will conduct cluster-level familywise error (FWE) (cluster $p=0.05$, 1000 permutations, uncorrected $p=0.001$) to explore the spatial consistency; additionally, we will use uncorrected p value with a conservative threshold (uncorrected $p<0.001$), and then remove clusters under a user-chosen size by setting minimum cluster volume as 250 mm^3 .

Subgroup analysis: Subgroup analysis will be performed depending on negative/positive stimuli and increased/decreased activity.

Sensitivity analysis: Jackknife sensitivity analysis will be conducted to test the robustness of results.

Country(ies) involved: China.

Keywords: depression disorder; conscious recognition of emotion; ALE.

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