

INPLASY PROTOCOL

To cite: Huang et al. Neural Alterations in Interpersonal Distance (IPD) Cognition and its Correlation with IPD Behavior: A Systematic Review. Inplasy protocol 202170074. doi: 10.37766/inplasy2021.7.0074

Received: 23 July 2021

Published: 23 July 2021

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Support: None.

Review Stage at time of this submission: Formal screening of search results against eligibility criteria.

Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: Interpersonal distance (IPD) is a complex and integrated social behavior, an in-depth understanding of the neural mechanisms associated with it is a vast and complicated task. How are

Neural Alterations in Interpersonal Distance (IPD) Cognition and its Correlation with IPD Behavior: A Systematic Review

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Review question / Objective: Interpersonal distance (IPD) is a complex and integrated social behavior, an in-depth understanding of the neural mechanisms associated with it is a vast and complicated task. How are the neural activity processes of IPD recorded and which brain regions are involved in the cognitive process of IPD? What are the connections between these brain regions? Are the neural IPD studies qualified to reflect the IPD behavioral processes? Hence, the current systematical review is to answer these questions. Besides, there were no articles that have systematically reviewed the neural mechanism of IPD. Thus, the present systematic review will focus on this topic, to sort out all the scientific publications related to neural correlates of IPD. This review will introduce the experimental paradigms of IPD and explored the strengths and weaknesses between them. As well, this article will summarize the brain activation in IPD, functional connectivity, and correlation between IPD and neural activities. Furthermore, based on a systematic review of the researches, this review will discuss the limitations of previous studies and proposes the challenges and opportunities in the field of IPD neuroscience.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 July 2021 and was last updated on 23 July 2021 (registration number INPLASY202170074).

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Condition being studied: This review aims to investigate the neural mechanisms related to IPD, eligible studies included those which conduct the IPD evaluation or cognition under neural methods, like fMRI, ERP. In this systematic review, the brain nerve changes in the process of interpersonal distance cognition/assessment, as long as it involves the process of interpersonal physical distance interaction between individuals.

METHODS

Participant or population: Healthy subjects who self-report or were screened by the researchers, without physical illnesses, mental disorders, psychiatric, or neurological. Patients, like, mental illness or brain lesion, to study the effect of brain function variation on IPD.

Intervention: None.

Comparator: Blank conditon/rest conditon.

Study designs to be included: IPD studies mainly adopted within-subjects or between-within subjects design to ensure that factors like: age, gender, culture, height, personal character were equivalent across experimental conditions. Therefore, this review included any types of evidence that related to the IPD neural process.

Eligibility criteria: 1) This review includes any types of evidence that related to the IPD neural process. 2) This review includes the IPD paradigms that must have met the physical distance between subjects and others. In addition, the experimental procedure must include the process of interpersonal distance assessment or interpersonal distance recognition. 3) Eligible studies include healthy subjects who self-report or were screened by the researchers, without physical illnesses, mental disorders, psychiatric, or neurological. Eligible studies also include patients (e.g., mental illness, brain lesion), to study the effect of brain function variation on IPD. 4) The outcomes of the studies have to contain neural results, especially the functional neural changes during the IPD-tasks. The studies, which only collect the neural structure in the brain were excluded. Outcomes of neural alterations must be recorded through devices used in neuroscience research, such as fMRI and EEG.

Information sources: The database included Ovid (MEDLINE, Embase, Cochrane, PsycINFO). Publication dates or language were no a limitation for search.

Main outcome(s): ERP components and the activation area of fMRI.

Quality assessment / Risk of bias analysis: Newcastle-Ottawa Quality Assessment Scale (NOS).

Strategy of data synthesis: This review will include research on brain neural activity including IPD assessment and cognitive processes. First, it will extract the basic information of the literature, the subject's information, the experimental paradigm and the brain activity recording tool (EPR or fMRI). Then, extract the brain activity indicators of the IPD task process: ERP components, brain activation areas, and brain function connections.

Subgroup analysis: None.

Sensitivity analysis: None.

Country(ies) involved: Japan.

Keywords: interpersonal distance; neural activation; functional connectivity; correlation.

Contributions of each author:

Author 1 - Xinxin Huang.

Author 2 - Shin-Ichi Izumi.