

INPLASY PROTOCOL

To cite: Lin et al. Social cognition in multiple sclerosis and its subtypes: a protocol for systematic review and meta-analysis. Inplasy protocol 202070028. doi: 10.37766/inplasy2020.7.0028

Received: 10 July 2020

Published: 10 July 2020

Corresponding author:
ZhongQuan Yi

yizhongquan@163.com

Author Affiliation:
Affiliated Yancheng Hospital,
School of Medicine

Support: Jiangsu commission
of Health

**Review Stage at time of this
submission:** Piloting of the
study selection process.

Conflicts of interest:
The authors have no conflicts
of interest to disclose.

Social cognition in multiple sclerosis and its subtypes: a protocol for systematic review and meta-analysis

Lin, XG¹; Zhang, XL²; Liu, QQ³; Zhao, PW⁴; Zhong, JG⁵; Pan, PL⁶; Wang, GD⁷; Yi, ZQ⁸.

Review question / Objective: The aim of this study is to conduct a meta-analysis to characterize social cognition performance in MS and its subtypes (clinically isolated syndrome, relapsing-remitting MS, progressive primary MS, and secondary progressive MS).

Condition being studied: Multiple sclerosis (MS) is an inflammatory and degenerative neurological disorder of the central nervous system. Cognitive impairment is frequent in MS patients, which not only includes deficits in abilities assessed by traditional neuropsychological batteries, but also often features impairments in social cognition (including theory of mind [ToM] and facial emotion recognition). Recently, numerous studies have assessed social cognition performance in MS. However, there have been inconsistent findings. Besides, it is not clear how social cognitive abilities are affected in MS subtypes.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 July 2020 and was last updated on 10 July 2020 (registration number INPLASY202070028).

INTRODUCTION

Review question / Objective: The aim of this study is to conduct a meta-analysis to characterize social cognition performance in MS and its subtypes (clinically isolated syndrome, relapsing-remitting MS,

progressive primary MS, and secondary progressive MS).

Condition being studied: Multiple sclerosis (MS) is an inflammatory and degenerative neurological disorder of the central nervous system. Cognitive impairment is frequent in MS patients, which not only

includes deficits in abilities assessed by traditional neuropsychological batteries, but also often features impairments in social cognition (including theory of mind [ToM] and facial emotion recognition). Recently, numerous studies have assessed social cognition performance in MS. However, there have been inconsistent findings. Besides, it is not clear how social cognitive abilities are affected in MS subtypes.

METHODS

Search strategy: The search terms consist of 2 parts: MS and social cognition. The Medical Subject Headings (MeSH) and text words will be used in combination. The terms to be used in relation to MS include “multiple sclerosis” and “MS”. The terms to be used in relation to the social cognition include “social cognition”, “theory of mind”, “ToM”, “mentalizing”, “mentalising”, “facial emotion recognition”, and “emotion”.

Participant or population: Patients with multiple sclerosis. No restrictions on sex, ethnicity, education or economic status.

Intervention: Studies compare social cognition performance between a group of patients with multiple sclerosis and a sample of healthy controls.

Comparator: Social cognition performance.

Study designs to be included: Case-control studies.

Eligibility criteria: Criteria for inclusion: 1. The study should be published as a primary peer-reviewed research article in English. 2. The study had to assess ToM or facial emotion recognition performance using standard measures. 3. Sufficient data to calculate effect sizes and standard errors of the ToM or facial emotion recognition were reported. 4. A matched HC group had to be included. Criteria for exclusion: 1. The study with the patient samples was overlapped with another one with a larger sample size. 2. The study lacked an HC group. 3. If the sample size of one study

was under 10, the study will be excluded to ensure the reliability of the outcome. 4. The publication was not an original type, such as research protocols, letters, conference abstracts, reviews, and editorials.

Information sources: Electronic databases (including PubMed, Web of Science, and Embase) have to be searched from inception to June 10th, 2020. There were no restrictions of the age of patients or phenotype of MS for inclusion. In addition, other resources will be searched manually, such as the references of all included studies.

Main outcome(s): Primary outcomes will include the ToM tasks and facial emotion recognition tasks used. Besides, the data used for calculating the effect sizes and standard errors of the ToM/facial emotion recognition tasks will be included.

Additional outcome(s): Additional outcomes will include the questionnaire of clinical symptoms of MS.

Quality assessment / Risk of bias analysis: We will use the Newcastle-Ottawa Quality Assessment Scale (NOS) to assess the quality of all included studies.

Strategy of data synthesis: As some studies did not provide a total mean score on ToM performance or included more than one individual ToM task, pooled effect size and standard error value were aggregated by computing the mean effect size. Similarly, the facial emotion recognition performance and social cognition performance were calculated.

Subgroup analysis: Subgroup analysis will be performed in individual ToM tasks (such as FPT, RMET, FBT, SST), six basic motions (such as anger, disgust, fear, happy, sad, and surprise), and MS subtypes (such as CIS, RRMS, PPMS, and SPMS).

Sensibility analysis: We will conduct a sensitivity analysis to test the influence of each dataset, methodological quality, and the potential impacts of missing data on the pooled MS results. If publication bias

was found, we will apply the trim-and-fill method to provide effect sizes adjusted for publication bias.

Language: English.

Country(ies) involved: China.

Keywords: multiple sclerosis, social cognition, theory of mind, facial emotion recognition, systematic review, meta-analysis, protocol.

Contributions of each author:

Author 1 - XiaoGuang Lin - The author drafted the manuscript.

Author 2 - XueLing Zhang - The author provided statistical expertise.

Author 3 - QinQin Liu - The author contributed to the development of the selection criteria, the risk of bias assessment strategy, and data extraction.

Author 4 - PanWen Zhao - The author contributed to the development of the selection criteria, the risk of bias assessment strategy, data extraction, and drafted the manuscript.

Author 5 - JianGuo Zhong - The author provided methodological support and software analysis guidance.

Author 6 - PingLei Pan - The author provided methodological support and software analysis guidance.

Author 7 - GenDi Wang - The author contributed to conception, design, data analysis, and writing the manuscript.

Author 8 - ZhongQuan Yi - The author contributed to conception, design, data analysis, and writing the manuscript.