# INPLASY PROTOCOL

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**Conflicts of interest:**
**No conflicts of interest.**

# The Prevalence of Irritable Bowel Syndrome after Severe Acute Respiratory Syndrome Coronavirus 2 Infection and their Association: A Systematic Review and Meta-Analysis of Observational Studies

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**Review question / Objective:** **To investigate the prevalence of IBS after SARS-CoV-2 infection and to assess the association between IBS and SARS-CoV-2 infection.**
**Eligibility criteria:** **Inclusion criteria: 1) participants from community or hospital; 2) SARS-CoV-2 infection history; 3) the prevalence of IBS after SARS-CoV-2 infection; 4) observational study. Exclusion criteria 1: 1) studies irrelevant to humans; 2) article type: abstract, review, editorial, comment, reply, and note; 3) the study did not investigate IBS symptoms after SARS-CoV-2 infection. Exclusion criteria 2: 1) studies without a control group: participants with no SARS-CoV-2 infection; 2) studies that could not calculate the secondary outcome: the risk ratio (RR) between IBS and SARS-CoV-2 infection.**

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 26 November 2022 and was last updated on 26 February 2023 (registration number INPLASY2022110138).

## INTRODUCTION

**Review question / Objective:** **To investigate the prevalence of IBS after SARS-CoV-2 infection and to assess the association between IBS and SARS-CoV-2 infection.**

**Condition being studied:** **The research subjects are the people were infected by the COVID-19.**

**The participants of control group are the people were not infected by the COVID-19.**
**We want to investigate the post-infectious irritable bowel syndrome (PI-IBS) following the COVID-19 infection.**
**The patients who present IBS during the COVID-19 pandemic but not actually infected by COVID-19 were not included.**

## METHODS

**Participant or population:** Hospital-based/ Community-based population.

**Intervention:** Exposure: patients with SARS-CoV-2 infection.

**Comparator:** Control: patients without SARS-CoV-2 infection.

**Study designs to be included:** Observational studies will be included.

**Eligibility criteria:** Inclusion criteria: 1) participants from community or hospital; 2) SARS-CoV-2 infection history; 3) the prevalence of IBS after SARS-CoV-2 infection; 4) observational study. Exclusion criteria 1: 1) studies irrelevant to humans; 2) article type: abstract, review, editorial, comment, reply, and note; 3) the study did not investigate IBS symptoms after SARS-CoV-2 infection. Exclusion criteria 2: 1) studies without a control group: participants with no SARS-CoV-2 infection; 2) studies that could not calculate the secondary outcome: the risk ratio (RR) between IBS and SARS-CoV-2 infection.

**Information sources:** Electronic databases: PubMed, Web of Science, Embase, Scopus, and Cochrane Library.

**Main outcome(s):** The incidence of PI-IBS following COVID-19 infection.

**Additional outcome(s):** The risk ratio of IBS after SARS-CoV-2 infection.

**Quality assessment / Risk of bias analysis:** Quality assessment: Newcastle–Ottawa Scale/ Study quality scale designed by the Agency for Healthcare Research Quality Risk of bias analysis: funnel plot, Begg's test, Egger's test.

**Strategy of data synthesis:** The prevalence of IBS post SARS-CoV-2 infection will be calculated, which will be presented as effect size (ES). The risk ratios of studies will be calculated. Also, the 95% confidence intervals and p values will be calculated. I-square statistics were calculated to assess the existence and magnitude of heterogeneity. An I-square value over 50% was considered to be moderate to high, which we defined as remarkable. When I-square > 50%, the random-effects model will be applied for calculation. Otherwise, we manipulated the fixed-effects model. All P values are two-tailed. Stata 15 will be used for all statistical analyses.

**Subgroup analysis:** The subgroup analyses will investigate the prevalence of IBS post SARS-CoV-2 infection and their relationship from these three aspects: (1) region; (2) study design; and (3) quality of study.

**Sensitivity analysis:** The robustness of the results was assessed by sensitivity analysis by excluding each study consecutively.

**Language restriction:** None.

**Country(ies) involved:** China.

**Keywords:** COVID-19; irritable bowel syndrome; systematic review.

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