

# INPLASY PROTOCOL

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

## Effects of COVID-19 on human fertility: meta analysis and systematic review

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**Review question / Objective:** Aim to verify the effects of COVID-19 on human fertility.

**Eligibility criteria:** (1) the research must contain the relationship between COVID-19 and sperm quality, sex hormones, sex function and/or pregnant out; (2) investigations should have abundant data to estimate relative risk (RR) and 95% confidence interval (95% CI); (3) Healthy control group should be contained; (4) include human subjects.

**Condition being studied:** Effects of COVID-19 on human fertility. We have searched the relative Literatures, and established Inclusion and exclusion criteria.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 January 2022 and was last updated on 21 January 2022 (registration number INPLASY202210110).

### INTRODUCTION

**Review question / Objective:** Aim to verify the effects of COVID-19 on human fertility.

**Condition being studied:** XEffects of COVID-19 on human fertility. We have searched the relative Literatures, and established Inclusion and exclusion criteria.

### METHODS

**Participant or population:** Healthy populations and COVID-19 patients.

**Intervention:** COVID-19 infection.

**Comparator:** Sperm quality, sex hormones, sex function, pregnant out.

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**Study designs to be included:** Randomized controlled trial study, Case-control study, Cross-sectional study, Cohort study.

**Eligibility criteria:** (1) the research must contain the relationship between COVID-19 and sperm quality, sex hormones, sex function and/or pregnant out; (2) investigations should have abundant data to estimate relative risk (RR) and 95% confidence interval (95% CI); (3) Healthy control group should be contained; (4) include human subjects.

**Information sources:** PubMed, Embase, Medline, Web of Science and Cochrane Library, China National Knowledge Infrastructure, Wanfang Data.

**Main outcome(s):** Assess the sperm quality(semen parameters) before and after infection of COVID-19.

**Additional outcome(s):** Assess the sex hormones, sex function, pregnant out before and after infection of COVID-19.

**Quality assessment / Risk of bias analysis:** We used The cochrane collaboration's tool for assessing risk of bias. Newcastle-Ottawa quality assessment scale (NOS) was used to evaluate case-control studies. Agency for Healthcare Research and Quality (AHRQ) statement was used to assess cross-sectional study. The funnel plot, Egger's and Begg's test were used to test publication bias.

**Strategy of data synthesis:** We used standard mean difference (SMD) and their corresponding 95% confidence interval (CI) to assess effect of COVID-19 on sperm quality, sex hormones, sex function and pregnant out. The  $P < 0.05$  was considered statistical significance.

**Subgroup analysis:** We performed subgroup analyses by different states of infection of COVID-19 on sperm quality, sex hormones, sex function and pregnant out.

**Sensitivity analysis:** Sensitivity analysis will be used to explore the robustness of the pooled effects of the included studies

regarding the study quality and sample size.

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

**Keywords:** COVID-19, SARS-CoV-2, Severe acute respiratory syndrome-coronavirus 2, 2019-nCoV, Corona virus, Sperm, Semen, reproductive system, Erectile function, Fertility, Pregnant.

**Contributions of each author:**

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Author 4 - Fujun Zhang.

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