

# INPLASY

## COVID-19 MANIFESTATION ON HIV PATIENTS, IS IT MORE SEVERE? A SYSTEMATIC AND META-ANALYSIS REVIEW FROM 290.447 PATIENTS

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### ADMINISTRATIVE INFORMATION

**Support** - This research receive no external funding.

**Review Stage at time of this submission** - Risk of bias assessment.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY2023100063

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 October 2023 and was last updated on 19 October 2023.

### INTRODUCTION

**Review question / Objective** 1. What are the differences of COVID-19 clinical manifestation in people living with HIV and non-HIV patients?

2. Does COVID-19 in people living with HIV exhibit more severe symptoms?

3. In people living with HIV, how is the severity of COVID-19 compared to people without HIV?

4. Are people living with HIV who contracted COVID have higher mortality?

5. What are the most common comorbidities in people living with HIV and non-HIV patients who contracted by COVID-19?

6. Does the utilization of ART influence the outcome in people living with HIV?

**Rationale** Prior research has examined the impact of COVID-19 on individuals living with HIV. Based on empirical data derived from evidence-based

research, individuals who are living with HIV/AIDS or PLWHs, have an equivalent susceptibility to SARS-CoV-2 infection when compared to individuals who do not have HIV/AIDS. People living with HIV (PLWHs) often belong to the immunocompromised population due to limitations in immune cells such as T cells and humoral cells. This weakened immunological status renders them more susceptible to contracting various opportunistic infections. Meanwhile, individuals on antiretroviral therapy (ART) will see restoration of their immunological competence, resulting in an immune system that closely resembles that of the immunocompetent population.

On the other hand, the co-infection of COVID-19 among PLWHs is exhibiting rapid progression. Considering that there have been previous investigations on this topic, our objective is to conduct a comprehensive evaluation of the existing research that have examined the impact of COVID-19 on PLWHs.

**Condition being studied** We aim to conduct a comprehensive evaluation of the existing research that have examined the impact of COVID-19 on people living with HIV.

## METHODS

**Search strategy** The study was employing a systematic literature search across multiple databases including Pubmed, Springer, and Google Scholar. The search terms used were "HIV," and "SARS-CoV-2".

**Participant or population** People living with HIV who contracted COVID-19, and people who contracte COVID-19 in general.

**Intervention** No intervention.

**Comparator** No intervention.

**Study designs to be included** Descriptive study design is included in this systematic review, which include case control design, retrospective and prospective cohort, comparison cohort, and observational cohort.

**Eligibility criteria** This study includes the analysis of articles written in English and published in international journals between the years 2020 and 2022. The selection of articles for analysis is based on their relevance to the specified search keywords. The analysis will focus exclusively on studies employing a descriptive research design without any intervention. These articles must provide comprehensive explanations regarding the demographic features, clinical symptoms, comorbidities, severity, and outcome of both HIV and non-HIV individuals affected by COVID-19. Articles should be written in english. A relevant outcomes and no contradictory findings about the impact of COVID-19 co-infection on people living with HIV is included in this study. Articles included in this study should also explain demographic characteristics, clinical manifestations, comorbidities, COVID-19 severity, and outcome of HIV and non-HIV patients affected by COVID-19.

**Information sources** We employed systematic literature search across multiple databases including Pubmed, Springer, and Google Scholar. Only articles that have been published in one of three search engines we used is included in this study.

**Main outcome(s)** We found no statistically significant difference observed in the occurrence

or intensity of COVID-19 between people living with HIV and those without this condition. The immunological health of patients who consume antiretroviral therapy (ART) is similar to or equivalent to that of the immunocompetent population. The presence of comorbidities both in people living with HIV and without HIV is proven to worsen the outcome of COVID-19.

**Quality assessment / Risk of bias analysis** We conducted a risk of bias analysis using A Measurement Tool to Assess systematic Reviews (AMSTAR) 2 checklist to critically appraise systematic reviews. From the checklist, the overall confidence in the results of the review for our study was moderate, which indicated that our systematic review has more than one weakness, but no critical flaws. It may provide an accurate summary of the results of the available studies that were included in the review.

**Strategy of data synthesis** Data extraction table with conventional synthesis is used in this study. We produced charts, table and diagrams to describe the demographic characteristics, clinical manifestations, comorbidities, COVID-19 severity, and outcome to compare COVID-19 characteristics in people living with HIV and without HIV.

**Subgroup analysis** We divide the population within two groups; people living with HIV and without HIV, to compare the demographic characteristics, clinical manifestations, comorbidities, COVID-19 severity, and outcome of COVID-19.

**Sensitivity analysis** We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to reporting subgroup and sensitivity analysis in this study.

**Language restriction** Only articles written in English is included.

**Country(ies) involved** Indonesia (Infection & Tropical Diseases Division of Faculty of Medicine Universitas Padjadjaran-Hasan Sadikin General Hospital Padjadjaran University).

**Keywords** HIV, SARS-CoV-2.

### Contributions of each author

Author 1 - Anggraini Alam - Author 1 contribute in conceptualizing, investigation, methodology, project administration, provide resources, supervision, visualization, validation, and review and editing manuscript.

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