# Abstract

**Objectives:** To have an overall understanding of the status quo of methods used and reporting quality of COVID-related studies using the propensity score matching (PSM) analysis.

## **Study Design and Setting:** A search was conducted on 1st June 2021 on PubMed to identify COVID-related studies that use the PSM analysis in 2020 and 2021. Key information about study design and the PSM analysis were extracted, such as covariates, matching algorithm, and clarification of which average treatment was estimated.

## **Results:** Among 171 articles that were included, 150 (87.72%) studies were cohort studies and 13 (7.60%) were case-control studies. 45 studies (26.32%) provided a reasonable justification for covariates selection. 103 (60.23%) studies didn’t provide the model used to calculate the propensity score and 69 (40.35%) studies didn’t report the matching algorithm. 73 (42.69%) studies reported the method(s) for checking covariates balance. 40 studies (23.39%) were considered as having statistician co-author. All the case-control studies (n=13) were without statistician co-author (p=0.006) and all studies that clarified what treatment effect was estimated (n=6) were with statistician co-author (p<0.001).

## **Conclusions:** The reporting quality of the PSM analysis is suboptimal in the COVID-related research. Some pitfalls that may undermine the conclusion of studies during the implementation of the PSM analysis should be given more attention.

*Keywords*

*Propensity score matching; Coronavirus disease; Reporting quality; Case-control study; Average treatment effect*

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