

## Examining the determinants of COVID-19 Severity: A cohort study in Morocco of 915 patients

**Zaynab Mahdi**

Medical school of Rabat, Morocco

**Introduction:** Coronavirus disease 2019 (COVID-19) is unpredictable and it varies from mild to severe and critical forms that are associated with a higher mortality rate. Risk factors associated with severe forms of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection have been investigated worldwide. We aimed to evaluate the clinical course of severe COVID-19 patients and to compare them with the non-severe patients concerning clinical and epidemiological characteristics, biological parameters and outcomes and thus, highlight the factors associated with severe forms of COVID-19 in our country.

**Methods:** This is a single-center, ambidirectional cohort study, conducted in Tangier's COVID-19 care premises. We included diagnosed COVID-19 patients between August 2020 and October 2021. Sampling was performed through stratification according to clinical forms. All patients were followed-up throughout disease evolution, until remission for mild to moderate forms and 30 days after discharge for hospitalized patient's group (severe to critical forms). Data were collected using the WHO International Severe Acute Respiratory and Emerging Infection (ISARIC) case report form (CRF) and extracted from medical records alongside with interviews with patients and their relatives.

**Results:** Among 915 included COVID-19 patients in Tangier, the non-severe group comprised 344 (37.6%) patients and the severe group comprised 571 (62.4%) patients. 514 were males (56.2%) and 401 were females (43.8%) and the mean age was 56.01 years ( $\pm 16.76$ ). The mean delay from onset of symptoms to diagnosis was 6.65 days  $\pm 4.68$  in the severe group and 5.4 days  $\pm 4.57$  in the non-severe group ( $p < 0.001$ ). Among the severe patient's group, 230 (40.3%) patients were admitted to the resuscitation unit, 258 (45.2%) patients were deceased during hospitalization, 313 (54.8%) were discharged alive, and 16 deaths occurred after discharge. Demographic, clinical, and biological characteristics showed significant differences between non-severe group and severe group. Multivariable logistic regression analysis showed increased odds of severity with male gender (adjusted odds ratio, aOR=2.91,  $p < 0.003$ ), age over 65 years old (aOR=2.68,  $p < 0.001$ ), diabetes (aOR=2.18,  $p < 0.03$ ), elevated D-dimers ( $> 1$  mg/mL) (aOR=6.09,  $p < 0.001$ ), superinfection (aOR=3.78,  $p < 0.001$ ), and baseline lymphopenia  $< 1000$  c/mm<sup>3</sup> (aOR=8.66,  $p < 0.001$ ).

**Conclusion:** The high-risk factors for developing severe COVID-19 are age  $> 65$  years, male gender, diabetes, elevated D-dimers, baseline lymphopenia, and superinfection. To predict severe and fatal COVID-19, factors identified may be used in the development of prediction tools for COVID-19 prognosis and risk stratification. Recalling the importance of considering at-risk populations, the management of epidemics must be planned in conjunction with the specificity of each community. Findings from our study may serve for health economic analyses and research in order to assist public health decisions in the future and should be integrated into health emergency preparedness and response strategies ensuring a resilient health system.

### Biography

Zaynab Mahdi is a medical doctor, graduated from the medical school of Rabat, she admitted to a residency program in the Abdelmalek Essaâdi University, Faculty of Medicine of Tangier, which allows her to benefit from specialized training in order to obtain a national specialty diploma in community medicine. And as a medical resident, she gained extensive experience working in epidemiology, public health, biostatistics, preventive medicine and clinical research. She is currently working on multiple projects such as determinants of COVID-19 disease severity, migrants' access to healthcare services in Morocco and mental health.