

## Predictors for COVID-19 Infection in a Tertiary Hospital in Manila

### Authors:

Cabana, Johnica C.  
Go, Kate Lauren G.  
Kho, Joshua Skyler N.  
Lapida, Jeanne Nathalie C.  
Lim, Joliana Lyssa X.  
Malicse, Alyza Katrina D.

### Affiliation of authors:

University of Santo Tomas, Faculty of Pharmacy, Department of Medical Technology

### Authors' e-mail addresses:

johnica.cabana.pharma@ust.edu.ph  
katelauren.go.pharma@ust.edu.ph  
joshuaskyler.kho.pharma@ust.edu.ph  
jeannenathalie.lapida.pharma@ust.edu.ph  
jolianalyssa.lim.pharma@ust.edu.ph  
alyzakatrina.malicse.pharma@ust.edu.ph

### Abstract

COVID-19 laboratory biomarkers must be established since infected individuals, especially those with comorbidities and the elderly, may develop multiple organ failure. This retrospective, non-experimental, quantitative, and comparative study aimed to identify the significant association of the five predictors: procalcitonin (PCT), high-sensitivity C-reactive protein (hs-CRP), ferritin, lactate dehydrogenase (LDH), and D-dimer, with the severity of COVID-19 infection among patients in a tertiary hospital. The secondary data was collected from a tertiary hospital and a total of 256 samples were included in the study through the non-probability sampling technique, purposive sampling. The data were processed with the use of IBM SPSS Statistics 25. Results obtained objectively compared the changes in the values of the predictors in severe versus non-severe COVID-19. All predictors showed elevated values except for PCT in age groups 19 to 38 years old for non-severe COVID-19 and PCT and D-dimer in age groups 39 to 49 years old for severe COVID-19. PCT, ferritin, and LDH values were higher for severe COVID-19 except age groups 39 to 49 years old for PCT and D-dimer, while hs-CRP values were only higher for age groups 19 to 49 years old and D-dimer for age groups 19 to 38 years old and 61 to 72 years old and above. Among these predictors, it may be concluded that PCT, ferritin, and LDH revealed a significant difference (p-value of <0.05) between severe and non-severe COVID-19 patients, while hs-CRP and D-dimer were insignificant. Consequently, ferritin, procalcitonin, and D-dimer were found to present a satisfactory level of prediction with 81.8% and an R value of .905. Moreover, the best fit model with the stated predictors indicates a directly proportional relationship with the expected probability of having severe COVID-19 infection. Therefore, the study rejected the null hypothesis, indicating that there was a significant difference between the laboratory test results (PCT, hs-CRP, ferritin, LDH, and D-dimer) of severe and non-severe COVID-19 infection.

**Keywords:** COVID-19; predictors; procalcitonin; lactate dehydrogenase; ferritin; high sensitivity C-reactive protein; D-dimer