

## Documents

Othman Zin, N.S.<sup>a</sup> , Taufek, N.H.M.<sup>a</sup> , Rahman, A.K.A.<sup>b</sup> , Jamaluddin, W.A.<sup>c</sup> , Suraya, C.<sup>a</sup>

### **Patient characteristics and risk factors contributing to mortality among hospitalised patients with COVID-19 in Malaysia**

(2023) *Pharmacy Practice*, 21 (3), art. no. 2857, .

**DOI:** 10.18549/PharmPract.2023.3.2857

<sup>a</sup> Department of Pharmacy Practice, Kulliyyah of Pharmacy, International Islamic University Malaysia (IIUM), Jalan Sultan Ahmad Shah, Pahang, Kuantan, 25200, Malaysia

<sup>b</sup> Department of Medical, Hospital Sultanah Nur Zahirah, Terengganu, Kuala Terengganu, Malaysia

<sup>c</sup> Department of Multidisciplinary, Hospital Hulu Terengganu, Terengganu, Malaysia

#### **Abstract**

**Background:** The COVID-19 pandemic caused a significant increase in deaths globally. However, there is a scarcity of data addressing risk factors associated with mortality among hospitalised COVID-19 patients in Malaysia. This study aimed to identify the predictors of death among hospitalised COVID-19 patients in Malaysia. **Methods:** A retrospective cross-sectional study was conducted at two public hospitals in East Coast Malaysia from February 2020 to August 2021. The study included all hospitalised COVID-19 patients by extracting data from the electronic medical records focusing on patient demographics and clinical outcomes. Univariable and multivariable logistic regression analyses were conducted to evaluate association between risk factors and mortality among COVID-19 patients. **Results:** A total of 1060 patients were included (59% male) with median age of 41.5 years (IQR 27 – 58.5). Multivariable logistic regression showed that factors contributing to mortality of COVID-19 patients were elderly (OR, 1.04; 95% CI, 1.02, 1.06;  $p = 0.001$ ), chronic kidney disease (OR, 3.75; 95% CI, 1.25, 11.27;  $p = 0.019$ ), an increased point of CCI score (OR, 1.59; 95% CI, 1.25, 2.05;  $p = \leq 0.05$ ), progression to severe stage (OR, 40.68; 95% CI, 17.55, 94.31;  $p = \leq 0.05$ ) and admitted to intensive care unit (ICU) (OR, 2.68; 95% CI, 1.16, 6.17,  $p = 0.021$ ). **Conclusion:** Patients who were elderly, with chronic kidney disease, multiple comorbidities, progressed to severe stage and admitted to ICU were at significantly increased risk of mortality. These findings highlight the importance of implementing extra monitoring and aggressive preventive measures for high-risk patients, in order to reduce their mortality risk and improve patient outcomes. © the Authors.

#### **Author Keywords**

characteristics; COVID-19; Malaysia; mortality; risk factors

#### **Index Keywords**

adolescent, adult, aged, ageusia, anosmia, Article, Charlson Comorbidity Index, child, chronic kidney failure, chronic lung disease, clinical feature, clinical outcome, comorbidity, coronavirus disease 2019, coughing, cross-sectional study, diabetes mellitus, diarrhea, disease severity, dry cough, dyspnea, fatigue, female, fever, headache, hospital admission, hospital patient, human, hyperlipidemia, hypertension, infant, intensive care unit, ischemic heart disease, length of stay, loss of appetite, Malaysia, male, mortality, multicenter study (topic), myalgia, nausea, newborn, people by smoking status, pneumonia, retrospective study, rhinorrhea, risk factor, sore throat, thorax pain, vomiting

#### **Funding details**

Ministry of Higher Education, MalaysiaMOHEFRGS/1/2022/SKK16/UIAM/01/3

CS??was?supported?by?a?Research?Grant?from?the?Ministry?of? Education?Malaysia?(Fundamental?Research?Grant?Scheme, ? FRGS/1/2022/SKK16/UIAM/01/3).?The?funder?had?no?role?in? study?design,?data?collection?and?analysis, ? decision?to?publish, ? or?preparation?of?the?manuscript.

CSZ was supported by a Research Grant from the Ministry of Education Malaysia (Fundamental Research Grant Scheme, FRGS/1/2022/SKK16/UIAM/01/3). The funder had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

#### **Correspondence Address**

Suraya C.; Department of Pharmacy Practice, Jalan Sultan Ahmad Shah, Pahang, Malaysia; email: chesuraya@iium.edu.my

**Publisher:** Grupo de Investigacion en Atencion Farmaceutica

**ISSN:** 1885642X

**CODEN:** PPHRG

**Language of Original Document:** English

**Abbreviated Source Title:** Pharm. Pract.

2-s2.0-85174012879

**Document Type:** Article

---

**ELSEVIER**

Copyright © 2024 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

 **RELX Group™**