Female and smokers are associated with acute and long COVID-19 symptoms among 32,528 vaccination individuals: a cross-sectional and nationwide study from China

Zheng Su\textsuperscript{1}, Yinghua Li\textsuperscript{2}, Ying Xie\textsuperscript{1}, Zhenxiao Huang\textsuperscript{1}, Anqi Cheng\textsuperscript{1}, Xinmei Zhou\textsuperscript{1}, Jinxuan Li\textsuperscript{1}, Rui Qin\textsuperscript{1}, Xiaowen Wei\textsuperscript{1}, Yi Liu\textsuperscript{1}, Xin Xia\textsuperscript{1}, Qingqing Song\textsuperscript{1}, Liang Zhao\textsuperscript{1}, Zhao Liu\textsuperscript{1}, Dan Xiao\textsuperscript{1}, and Chen Wang\textsuperscript{1}

\textsuperscript{1}China Japan Friendship Institute of Clinical Medicine Research
\textsuperscript{2}China Education Foreign Teaching Materials Beijing Center

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Abstract

Backgrounds To our knowledge, there is no available nationwide data on omicron symptom patterns in China mainland. We aim to determine the acute and long COVID-19 symptoms in the omicron-dominant period and to evaluate its association with age, sex and smoking status. Methods We designed a cross-sectional nationwide study and data about self-reported symptoms were collected by an online platform named Wenjuanxing. Eligible participants were aged 25 - 65 years and were symptomatic. To improve the representativeness of sample size, the ratios of the number of people of different ages and genders were weighted by the data from the Seventh National Census (2020 years), and validated by a published nationwide representative study through comparing smoking rates. Descriptive analysis was conducted to report information on demographic characteristics, diagnosis ways and duration time, acute symptoms, hospitalization, severity and long COVID-19 symptoms. And, multivariate Logistic regression models were used to explore the effect of age, sex and smoking on acute and long COVID-19 symptoms. Results A total of 32,528 individuals diagnosed as COVID-19 infection from October 1, 2022 to February 21, 2023 were included. The top three acute symptoms of COVID-19 infection were fever (69.90%), headache (62.63%), sore throat (54.29%). The rates of hospitalization within 7 days, symptoms disappear within 21 days were 3.07% and 68.84%, respectively. Among 3983 COVID-19 patients with 3 months or more time difference between first infection and participation into the study, the long COVID-19 rate was 19.68% and the primary symptoms were muscle weakness (19.39%), headache (17.98%) and smell/taste disorder (15.18%). Compared with male and never smokers, female and current smokers were risk factors for each acute COVID-19 symptoms, and also had a higher risk for fatigue among long COVID-19 symptoms. Lastly, female and current smokers also were related with more number of symptoms during acute infection period. Conclusions Omicron variant to be milder in terms of severity in China mainland. And, more attention should be given to high-risk population (current smokers and women) to control disease burden caused by COVID-19.

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