

## RESEARCH LETTER

# Relation of smoking behaviour with severity of COVID-19 infections in a sample of Iraqi patients

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The World Health Organization (WHO) reported that smokers have a higher risk of developing severe disease with COVID-19 compared to non-smokers.<sup>1</sup> However, a few reports refuted this relationship<sup>2</sup> despite established knowledge that smoking raises the risk of bacterial and viral illness infections, especially respiratory infections.<sup>3</sup> We have examined the differences in COVID-19 symptom severity between smokers and non-smokers, its frequency and type with COVID-19 symptom severity in a sample of Iraqi COVID-19 recovered individuals.

We have recruited 658 (411 women and 247 men) COVID-19 Iraqi patients (aged 20-39) who recovered from a recent attack (before two weeks) of COVID-19 at Al-Yarmok Teaching Hospital and Al-Shifa Medical Centre between January and August 2021. Their participation was voluntary, and informed consent was obtained. The data collection questionnaire included age, sex, severity of symptoms (severe: symptoms that required hospitalisation and oxygenation therapy; moderate: those bedridden; and mild: flue-like symptoms), and smoking, its frequency (daily, non-daily) and types (cigarette, hookah, both). We excluded those with asthma, chronic respiratory, and other chronic systemic diseases.

The key results of the chi-square analysis are presented in Table 1. The smoking proportions, frequencies, and types are similar across the COVID-19 severity categories ( $P>0.1$  for all). Nicotine has been demonstrated to impede the growth of SARS-CoV-2, possibly by reducing the lungs' cytokine storm and lessening the severity of COVID-19 infection.<sup>4</sup> However, smoking is arguably the biggest risk factor

that can be avoided.<sup>5</sup> Giving up smoking can reduce SARS-CoV-2 infection risk in addition to illnesses associated with tobacco use.<sup>6</sup> Nicotine increases the amount of viral entry, and SARS infection downregulates the expression of angiotensin-converting enzyme-2 as a regulatory mechanism after infection.<sup>7</sup> Well-designed clinical trials are necessary to examine the effect of nicotine on this.

According to the German news website N-TV, a medical team at Pitié Salpêtrière Hospital in the French capital, Paris, conducted a study that

**Table 1** Smoking behaviour of patients with severity of COVID 19 patients, results are number (per cent)<sup>a</sup>

Characteristic	Mild (n=187)	Moderate (n=358)	Severe (n=113)
Age			
20s	65 (34.8)	105 (29.3)	44 (38.9)
30s	122 (65.2)	53 (70.7)	269 (61.1)
Sex			
Men	85 (45.5)	199 (55.6)	63 (55.8)
Women	102 (54.5)	159 (44.4)	50 (44.2)
Smoking			
No	139 (74.3)	282 (78.8)	94 (83.2)
Yes	48 (25.7)	76 (21.2)	19 (16.8)
Frequency of smoking			
Daily	40 (21.4)	56 (15.6)	12 (10.6)
Non-daily	8 (4.3)	20 (5.6)	7 (6.2)
Method of smoking			
Cigarette	18 (9.6)	35 (9.8)	10 (8.8)
Hookah	20 (10.7)	23 (6.4)	3 (2.7)
Both	10 (5.3)	18 (5.0)	6 (5.3)

<sup>a</sup>None of these variables were significantly different between pain categories

## Key messages

This cross-sectional study done in 658 adult Iraqi patients (aged 20 to 39) did not find an association between smoking habit, its types and frequencies with the severity of COVID-19 symptoms.

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suggested nicotine may have protective properties against the COVID-19 virus, meaning that smokers may be less likely to get the virus than non-smokers.<sup>2</sup> This finding has surprised the scientific community because the harms of smoking are beyond debate nowadays.<sup>3</sup> There are reports of higher mortality among smokers compared to non-smokers. Well-designed studies do not refute the smoking habits' putative effect on COVID-19.<sup>4</sup> Our results agree with a few previous studies that smoking's association with COVID-19 severity is not cognisable. While tobacco smoking may provide some protection against respiratory infections, it is a potentially dangerous chemical that may negatively affect the respiratory epithelium and health in general. In conclusion, we did not find any protective or putative relationship between smoking and COVID-19 severity in this Iraqi sample of post-COVID-19 patients.

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#### Author contributions

*Conception or design of the work; or the acquisition, analysis, or interpretation of data for the work:* KIN, NHK, MES, RHG. *Drafting the work or reviewing it critically for important intellectual content:* KIN, NHK, MES, RHG. *Final approval of the version to be published:* KIN, NHK, MES, RHG. *Accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved:* KIN.

#### Conflict of interest

We do not have any conflict of interest

#### Data availability statement

We confirm that the data supporting the findings of the study will be shared upon reasonable request.

#### Supplementary file

None

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