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► **To cite this version:**

Javier Correa Vázquez, Diego Redolar-Ripoll. Epidemiological data from the COVID-19 outbreak in Spain for the promotion of tobacco smoking cessation policies. Tobacco Use Insights, 2020, 13, pp.1-2. 10.1177/1179173X20924028 . hal-03172473

**HAL Id: hal-03172473**

**<https://hal.inrae.fr/hal-03172473>**

Submitted on 17 Mar 2021

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# Epidemiological Data From the COVID-19 Outbreak in Spain for the Promotion of Tobacco Smoking Cessation Policies

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Tobacco Use Insights  
Volume 13: 1–2  
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DOI: 10.1177/1179173X20924028



The spread of the coronavirus disease 2019 (COVID-19) around the world is now a reality. The already declared COVID-19 pandemic,<sup>1</sup> provoked by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2),<sup>2</sup> was initially recorded in December 2019 in Wuhan, China. Today, COVID-19 confirmed global cases pass 1 million, Europe and North America have already become the worst-affected continents, with Italy (128 948 confirmed cases and 15 887 reported deaths), Spain (130 759 confirmed cases and 12 418 reported deaths), and the United States (331 151 confirmed cases and 9458 reported deaths) particularly hard hit.<sup>3</sup>

In our letter to the editor recently published in *Tobacco Induced Diseases*,<sup>4</sup> we reported that, although men (50.4%) and women (49.6%) were getting infected by COVID-19 at similar rates in Spain, the mortality rate was significantly higher in men (4.7%) than in women (2.6%), with an emerging evidence suggesting that these discrepancies could potentially be due to gender-based differences, such as patterns and prevalence of smoking, one fact aligned with the tobacco smoking prevalence existing in Spain regarding men (25.6%) and women (18.8%) in 2017.<sup>5</sup>

Our hypothesis was then whether tobacco smoking was influencing the gender-based impact of the COVID-19 outbreak in Spain. As of April 5, 2020, while we know that the mortality rate is still significantly higher between men (8%) and women (4.6%) in Spain,<sup>6</sup> biological data have found that smoking can upregulate the angiotensin-converting enzyme-2 (ACE2) receptor, the transmembrane protein serving as the main entry point into cells for some coronaviruses, including SARS-CoV-2.<sup>7</sup> In this regard, emerging data already suggest that patients with chronic obstructive pulmonary disease (COPD) and current smoking (CS) are at increased risk of serious COVID-19 infection, since ACE2 expression in lower airways is increased in patients with COPD and CS.<sup>8</sup> These results have been similarly replicated in rodents.<sup>9</sup>

As of April 5, 2020, data regarding clinical characteristics of patients diagnosed with COVID-19 and pre-existing health conditions such as respiratory diseases, or lung diseases, are not available in Spain (notably, there are no reported data on the tobacco smoking status of patients). Accordingly, we ask the Spanish government to (1) *record and share the tobacco smoking status data of all identified cases of COVID-19*. In the meantime, with consumers legally allowed to purchase tobacco products during the lockdown, even in the hardest hit areas of the country,<sup>10</sup> we

recommend that public health authorities from the Spanish government focus on how to decrease the COVID-19 contraction, transmission, and mortality rates, considering (2) *tobacco smoking cessation advice* (including COVID-19 context-specific smoking cessation campaigns) and (3) *evidence-based tobacco smoking cessation interventions* (including taxation increases, interdiction of sales of all forms of tobacco during the pandemic period, or enhancement of nicotine cessation programs).

## Author Contributions

JCV contributed substantially to the conception and design of the study, acquisition of data, and data analysis and interpretation, agreeing to be 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. JCV and DR-R drafted the manuscript. DR-R provided critical revision of the article and final approval of the version to be published.

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**KEYWORDS:** COVID-19, tobacco, smoking, sex differences, cessation policies

**RECEIVED:** April 6, 2020. **ACCEPTED:** April 11, 2020.

**TYPE:** Letter to the editor

**FUNDING:** The author(s) received no financial support for the research, authorship, and/or publication of this article.

**DECLARATION OF CONFLICTING INTERESTS:** The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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