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Letter to the Editor

Rethinking spitting in public spaces in the light of COVID-19 transmission through saliva



Historical and cultural perspective and limitations, of spitting

In this day and age, it is likely incorrect to assign a habit, such as spitting, to a specific culture, country, or population. At the end of the 19th and early 20th centuries, anti-spitting legislation was passed in several parts of the United States to protect the public against the spread of tuberculosis, although the effectiveness of anti-spitting laws on reducing tuberculosis transmission was unknown or unproved and was most likely introduced as a measure to increase social civility.¹ Thus, there is a precedent of associating spitting with the transmission of disease, even if the link is unclear.

Although spitting has been viewed as both an acceptable and an unacceptable habit from the perspective of Eastern vs Western societies *sensu lato*,² in this letter, spitting habit and culture will not be associated. Even in cultures or societies where spitting might be perceived as 'acceptable', there are likely to be individuals who do not agree with, or repudiate, this habit, and even in cultures or societies where spitting might be perceived as 'unacceptable', there are likely to be individuals who agree with, or do not repudiate, this habit. Therefore, spitting will be considered as a personal choice in this letter to simplify the complexities of attempting to assign influence by culture or society on this habit. Furthermore, spitting in private spaces (e.g. in homes) is not considered, and the discussion is limited to public spaces.

The transmission of diseases, including COVID-19, through saliva

In 2020, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes coronavirus disease 2019 (COVID-19), was shown to co-infect with other viruses, bacteria, and fungi, including in sputum,³ which may complicate detection and treatment options.⁴ The transmission of the SARS-CoV-2 virus can be through larger droplets, during coughing or spitting, or via smaller droplets in aerosols, also via spitting.⁵ The weight and amount of droplets and proximity to another uninfected person being important determinants of transmission.⁶ The risk of transmission may be prolonged by the persistence of the virus on inanimate surfaces.⁷ Thus, at least in theory, saliva or sputum, via spitting, may be a vehicle of transmission of the SARS-CoV-2 virus. Although no robust data were shown to support their claims, Gautret et al. indicated that "the number of viruses [i.e. SARS-CoV-2 copies] released in a single spit is about 100,000 times greater than the number of viruses released over 18 hours/day through coughing" (p. 2).² Saliva also serves as a non-invasive sample for detecting the SARS-CoV-2 virus, up to 25 days after the onset of symptoms,⁸ for example,

testing RNA with real-time quantitative polymerase chain reaction, or detecting immunity, via enzyme-linked immunosorbent assay—based SARS-CoV-specific serum immunoglobulin G and secretory immunoglobulin A.⁶ However, the antigen test has shown low detection sensitivity.⁹ Wide heterogeneity among design, sampling, and detection techniques explained a wide range of detection percentages (13–92%) of the SARS-CoV-2 virus in saliva.¹⁰

Spitting in the age of COVID-19: need to reassess a bad habit in public?

Spitting has been associated with hostility, disrespect, disdain, and even compensatory behaviour or pleasure, but pathological spitting is difficult to control, so the use of fines for spitting in public might not be a sufficiently strong deterrent. A greater understanding of the psychology of spitting and wider public health awareness and research is needed, especially given the risk of transmission of the SARS-CoV-2 virus.¹¹ Does a person have the right to spit in public, and is a law that prohibits spitting in public places a violation of personal rights? In the sense that spitting may transmit the SARS-CoV-2 virus and can thus constitute a health risk to other members of the public, the issue is no longer about rights or a public nuisance or irritant but rather about a public health risk to others. Thus, spitting by those who are knowledgeable of this risk might be perceived – by those who do not wish to see the act of spitting or be a recipient of its transmitted microbes – as selfishness or a lack of consideration for others' needs, health, and feelings. Perhaps it is time to reassess the habit of spitting in public, especially because COVID-19, similar to other respiratory diseases, is likely to remain with humanity for some time yet. Although the protection of workers using personal protective equipment is a well-studied issue,¹² social habits, such as spitting, are less frequently discussed.

Authors' contributions

The author contributed to the intellectual discussion underlying this article, literature exploration, writing, reviews and editing, and accepts responsibility for the content and interpretation.

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