



Addressing e-cigarette health claims made on social media amidst the COVID-19 pandemic

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We are in a global pandemic that is responsible for more than 73.6 million confirmed cases and over 1.64 million deaths. Recent evidence highlights that electronic cigarette (e-cig) use by young people has a strong association with COVID-19 diagnosis [1].

The e-cig industry has successfully utilized social media platforms to market e-cigs to adolescents [2]. The industry typically posts on various social media sites, such as Instagram and Reddit, frequented by adolescents. Moreover, evidence [3] collected from social media during the COVID-19 pandemic has shown that there have been various unsubstantiated health claims made about e-cigarettes (e-cigs) and its contents being protective factors against COVID-19. Specifically, Majumdar et al. [3] conducted surveillance on Twitter regarding conversations on the topic of e-cigs. Three main health claims were found in their study, these themes perpetuate that e-cigs can prevent COVID-19 infections by increasing the humidity in the lungs, e-cigs could be a delivery device of compounds that can destroy the virus such as oregano oil, and poly-glycerin constituents in e-cigs have the potential to destroy the virus [3]. While it is difficult to pinpoint who made these claims exactly, it boils down to either the industry or casual social media users. It is important to note that none of these claims have been supported by scientific evidence [3]. Additionally, it is known that adolescents often access health information from social media platforms. These unfounded health claims may appear enticing for adolescents as portions of these claims integrate scientific terminology, which in turn may increase their believability. Adolescent-friendly social media often serves

as a source of misinformation, and therefore, it is of utmost importance to carefully select and address this widely circulating misinformation and provide evidence-based guidance to vulnerable young people.

Furthermore, unvalidated health claims like these can fester on social media and young people may have challenges evaluating the accuracy of the material they read online. Moreover, even adolescents who are not immediately tempted by these health claims may become motivated to seek further information on e-cigs to better their understanding of the product. Research has shown that young people who were seeking health information on e-cigs were then subsequently more likely to use e-cigs 6 months later [4]. This further highlights the perspectives of health information adolescents may be accessing online. It is clear that there a plethora of pro-e-cig information dominates much of the available information online [4]. Thus, adolescents accessing health information online are likely only seeing one side of the overall picture—information that supports e-cigs use. Hence, it is public health voices must come together as a unified voice and provide evidence-based information to adolescents in a time sensitive and engaging manner.

Even before COVID-19, there were already several negative health impacts established regarding adolescent e-cig use including an increased risk of nicotine dependence, nicotine negatively impacting the development of the brain, cardiovascular disease, cancer and pulmonary diseases [5]. Additionally, e-cig use can lead to a transition towards the use of conventional cigarettes, dual use of e-cigarettes and conventional cigarettes, and future illegal substance use [5]. Thus, it is apparent that e-cig use can lead to the serious detriment of adolescents' health and wellbeing at present and in the future.

According to the World Health Organization (WHO) statement made during this pandemic [6], it is recommended that all current tobacco smokers immediately quit using evidence-based smoking cessation therapies endorsed by the Food and Drug Administration. The WHO conducted an

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extensive review of the available literature including eight meta-analyses to reach their conclusions [6]. In the WHO's overall analysis, smoking was found to be associated with an increased risk of disease severity and mortality amongst hospitalized COVID-19 patients [6]. This evidence directly challenges the views of those who have suggested that e-cigs may be protective against COVID-19. Thus, it is important that adolescents steer clear of e-cig use all the more, given infection risks from hand-to-mouth action, and many other unanswered questions on how COVID-19 may interact with e-cig use, and the other previously known negative health consequences of e-cig use. Also, e-cig aerosols could potentially serve as a medium for COVID-19 to spread person to person. Additionally, e-cig use is ill-advised during this pandemic given the possibility of adverse effects of cigarette aerosol on cell physiology, lung tissues and the immune system.

Adolescents are accessing a plethora of valuable health information resources constantly, building support networks and socializing with other young people through social media. Consequently, issues pertaining to the spread of false health claims must be duly addressed to enhance tobacco-free lifestyles of our adolescents. It is more important than ever as there is a plethora of misinformation being perpetuated on social media. Successful efforts to combat the widespread invalid health claims will require a trusted voice that is capable of addressing and extinguishing false claims appropriately. The World Journal of Pediatrics (WJP) is a well-respected and trusted voice for health, it has a visible presence on Twitter. Due to various barriers such as comprehension challenges, many of the high-quality articles that are published in the WJP may be inaccessible to adolescents. Therefore, we request that the WJP takes a lead in the creation of high-quality, easy to understand resources targeting adolescents' literacy level during the COVID-19 pandemic. Through this, adolescents can educate themselves and make informed decisions on their lifestyle choices including e-cigs.

We have seen that COVID-19 fatalities are higher among people with pre-existing conditions including cardiovascular and chronic respiratory conditions, cancer, and diabetes [6]. Moreover, we know that tobacco use is the main common risk factor linked to all of these diseases; and eight systematic reviews further confirmed this connection rigorously [6]. It is clear that smoking does not protect us from COVID-19 [6]. COVID-19 is a disease that primarily affects the respiratory tract. Scientific research and previous outbreaks with similar viruses suggest that smoking is associated with longer, more severe infections, and increases mortality. Smoking is a pediatric disease. With youth e-cig use in North America at record-high levels, supporting smoking cessation is critical for the wellbeing of our adolescents. Adolescents may blindly believe that their age

protects them from contracting COVID-19; however, new study data show this is not true among those who vape [1]. It is widely misunderstood that young people who contract COVID-19 will usually have mild viral symptoms. However, the latest research suggests that one in three young adults are vulnerable to falling seriously ill, with those who smoke being particularly at risk [7]. This study highlights the relationship between smoking and COVID-19 among the younger population. Furthermore, this new study reiterated existing evidence that indicates a "significant association" between smoking and needing hospitalization for severe COVID-19 symptoms [7]. Prioritizing measures to help prevent and reduce the disproportionate effect of smoking on the adolescents and younger populations must be part of the national prevention strategy. Prevention or reduction in the severity of as many cases of COVID-19 will be a critical step to reduce morbidity and mortality and conserve an already strained healthcare system. Tobacco prevention efforts will be a critical intervention in this effort—physicians are a credible and trusted source of advice to quit. We need to develop optimal risk communication tools appropriate for clinician use and a pediatric patient's numeracy and comprehension.

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