

Electronic cigarettes and suicidal behaviours among adolescents and young adults: An unclear relationship that calls for further research

Henry Onyeaka^{1,2*}, Chioma Muoghalu³, Uaiye Enosolease⁴,
Kammarauche Asuzu⁵, and Kwaku Oppong Asante^{6,7}

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A recent systematic review by Livingston and colleagues (Livingston et al., 2022) sought to synthesize available evidence on the physical and mental health outcomes associated with e-cigarette use in adolescent populations. Among other findings, suicidal behaviours were one of the most frequently reported mental health problems among young adults who indicated ever using electronic cigarettes.

We provide a complementary perspective that continues the conversation about the mental health consequences of electronic cigarettes among youth, particularly in relation to suicide and suicidal behaviours. Notably, while evidence from the 18 eligible studies provided insufficient basis to satisfactorily address the key aims of the systematic review (Livingston et al., 2022), it is even more concerning that globally, only three cross-sectional studies have reported evidence on the association between electronic cigarettes and suicidal behaviours among adolescents between 2010 and 2020. Given the high prevalence in suicidal behaviours among adolescents (WHO, 2021), and the need to examine the multiple pathways to suicidal behaviour, the dearth of studies on the potential impact of electronic cigarette use on self-harm and suicidal behaviours among children and adolescents is troubling and as such warrants further research attention for at least four reasons:

1 Department of Psychiatry, Harvard Medical School, Boston MA, USA

2 Department of Psychiatry, Massachusetts General/Mclean Hospital, Boston MA, USA

3 Department of Pediatrics, Plains Regional Medical Center, Clovis, NM, USA

4 Department of Mental Health, University of Benin Teaching Hospital, Benin City, Edo, Nigeria

5 Yale Child Study Center, Yale University School of Medicine, New Haven, CT

6 Department of Psychology, University of Ghana, Legon, Accra, Ghana

7 Department of Psychology, University of the Free State, Bloemfontein, South Africa

***Corresponding author:** Department of Psychiatry, Massachusetts General/Mclean Hospital, Boston MA, USA

Email: honyeaka@mgh.harvard.edu

1. Globally, suicide is the second leading cause of death among young people aged 15–19 years (WHO, 2021), and the same report indicates that approximately 79% of the annual world-wide suicide-related mortality are reported in low- and middle-income countries (LAMICs) (WHO, 2021).
2. Adolescents' use of electronic cigarettes (e-cigarettes) has increased tremendously in recent years, making e-cigarettes the most used tobacco products among adolescents and young adults, particularly those living in highly resourced countries (Cullen et al., 2019)
3. The mental health implications of electronic cigarette (e-cigarette) use in adolescents and young adults are not entirely well known.

Beyond these critical reasons, we suspect that if unstemmed, e-cigarette use and suicidal behaviours could be a significant public health threat among children and young people globally. Although commonly marketed as healthier alternatives to cessation of conventional tobacco smoking, the extant literature suggests that e-cigarettes are readily accessed by teenagers for experimentation than smoking cessation (Hughes et al., 2015), and there is evidence indicating that e-cigarettes can potentially serve as a possible gateway to cigarette smoking in young people (Cobb & Abrams, 2011). While regulatory policies to limit youth access to e-cigarettes may lead to reductions in e-cigarettes uptake among youth, the US FDA, in a landmark decision in October 2021, authorized the sale of e-cigarettes in the US for the first time (Commissioner, FDA 2021). The organization argued that the potential benefit of e-cigarette in inducing smoking cessation outweighs the potential adverse effects it poses to adolescent population. This legislation could represent a new direction for e-cigarettes both in the US and globally, and given that there are no known effective treatments for adolescent electronic vaping products (EVP) cessation, the potential for higher rates of diffusion of e-cigarettes in youth populations is to be expected. Additionally, an emerging alarming trend observed in the recent published literature is the use of EVP as a method for attempting suicide (Jalkanen et al., 2016; Maessen et al., 2020; Park & Min, 2018). These findings call for caution and support the need for more rigorous investigation of the link between e-cigarette use and suicidal behaviours in teenage populations.

We highlight as critical the review's evidence that suicide is one of the most frequently reported mental health problem among youth who use e-cigarettes (Livingston et al., 2022). This evidence could be pointing to a need for future studies to examine self-harm and suicidal behaviours among young populations who use EVP. While we reaffirm the authors' recommendation that future longitudinal studies are needed to identify consequences and mechanisms associated with adolescent e-cigarette use (Livingston et al., 2022), we also wish to add that future studies should carefully consider diverse young populations that are highly vulnerable to suicidality and e-cigarette use such as young persons identifying as LGBTQ, pregnant adolescents girls and young women, young adults living with HIV and those experiencing homelessness. In addition, all three cross-sectional studies (Chadi et al., 2019; Kim & Kim, 2021; Lee & Lee, 2019) that

emphasized the link between e-cigarette use and suicide were restricted to school-going young people in two countries – the United States and Korea. However, for representative sampling and to ensure generalizability of findings, researchers should also consider including the sampling of young people in low- and middle-income countries (LAMICs) where the burden of suicide is relatively higher, as well as among adolescents that are home-schooled teenagers or frequently skip school.

Finally, we agree with the authors that the majority of the literature on electronic cigarette use and suicidal behaviour among youth have been limited to surveys and self-reports of e-cigarette and suicide. Future research should endeavor to implement validated scales and standardized measures for improved validity of findings, examine the impact of different types of e-cigarettes on mental health outcomes, and explore the association between e-cigarettes and adolescent suicidality and other known precursors of negative mental health outcomes (e.g., depression and anxiety).

The current trajectory suggests that the rising prevalence of suicidal behaviours and e-cigarette use among youth may pose significant public health threat in the future. Thus, research focused on enhancing the understanding of the intersection of e-cigarettes with self-harm and suicidal behaviours among children and young people are needed to inform relevant stakeholders and policy makers towards developing policies aimed at curbing e-cigarette use as well as suicide prevention.

Disclosure statement

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ORCID

Henry Onyeaka  <https://orcid.org/0000-0002-1987-0941>

Chioma Muoghalu  <https://orcid.org/0000-0002-0258-8173>

Uaiye Enosolease  <https://orcid.org/0009-0003-5004-8707>

Kammarauche Asuzu  <https://orcid.org/0000-0001-5792-3605>

Kwaku Oppong Asante  <https://orcid.org/0000-0002-0206-3326>

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