

Vending Machines and Youth Access to Cigarettes in Ireland: A Cross-sectional Study

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SUMMARY

Tobacco-related morbidity and mortality significantly adversely impact public health and well-being on a global scale. Most smokers start smoking before being legally of age to smoke. Cigarette vending machines are an acknowledged access route for underage smokers to access cigarettes. Using a convenience sample, this research uses an online survey to explore the willingness of adults to purchase a vending machine token for underage smokers. Data was collected from 599 participants. Over 12% of adults reported that they would buy such a token for a 17-year-old, while another 8.6% of respondents were unsure. Analysis revealed that smoking history and age were significant factors in predicting willingness to purchase a cigarette vending machine token for an underage smoker. As cigarette vending machines remain an access route for youths to cigarettes, this research supports the forthcoming legislation banning such machines in Ireland.

Keywords: Tobacco; Cigarettes; Cigarette Vending Machines; Youth; Health Promotion; Ireland.

INTRODUCTION

The use of tobacco continues to be a significant cause of avoidable illnesses and deaths around the world (1). According to the World Health Organization (WHO), it contributes to over 8 million deaths annually, significantly burdening healthcare systems and public health outcomes (2). The Global Burden of Disease Study highlights tobacco as a persistent risk factor across regions and age groups (3). However, it is not only the impact of tobacco on human health that should be considered. The adverse environmental damage caused by the tobacco industry has also been the focus of increasing attention (4,5).

In Ireland, smoking has long been a public health concern (6). Although significant efforts have been made in reducing prevalence through policy and education, smoking rates remain unacceptably high (7,8). The government set an ambitious goal to become smoke-free, defined as having a smoking rate below 5%, by 2025 (9). However, it is now clear that this

target has not been met, as the smoking prevalence appears to have plateaued at 18% (8).

Youth smoking continues to present challenges and is acknowledged as a global public health problem (6,10). Data from the Healthy Ireland Survey 2024 indicate that individuals typically try their first cigarette at 16 years old and begin daily smoking at 18, with men starting slightly earlier than women (8). Findings from the Health Behaviour in School-aged Children (HBSC) Ireland survey similarly report that a sizeable proportion of school-aged adolescents have tried smoking at least once (11). Effective reductions in youth smoking must focus on both supply and demand, and enforcement is a crucial issue in addressing supply (10).

Cigarette vending machines have historically served as an access point to tobacco for underage smoking (12-15). Article 16 of the WHO's *Framework Convention on Tobacco Control* (FCTC) recommends a ban on vending machines or, at the very least, restrictions on youth accessibility to them (10, 15). In line with

Statutory Instrument (S.I.) No. 42/2009 - Public Health (Tobacco) (Self Service Vending Machines) Regulations 2009, cigarette vending machines in Ireland must be activated by a token or card obtained from a staff member, or by a device controlled by such staff (17). However, despite such regulatory changes in Ireland, these machines remain a loophole that is potentially exploited by younger people (12,13). Donaghy *et al.* note that many youth smokers access cigarettes through what has been termed 'social sources' (18). This research aimed to explore factors influencing individuals' willingness to purchase a cigarette vending machine token for adolescents across a range of ages from 13 to 19.

METHODS

This study employed a cross-sectional survey design to assess attitudes toward assisting youth access to cigarette vending machines among adults in Ireland. Ethical approval was granted by the Research Ethics Committee of the Technological University of the Shannon (TUS). An opportunistic sample of students and staff from a provincial Technological University in Ireland was invited to participate in this research. Technological universities in Ireland offer a comprehensive range of courses, from craft apprenticeships up to PhD level. As such, they enrol more diverse cohorts of students than traditional universities (19). Data was collected via an online survey using Microsoft Forms. The data collected was analysed using descriptive and analytical statistics in R software. In addition to asking demographic and smoking status questions, the survey also inquired about participants' willingness to purchase tokens

for cigarette vending machines for individuals aged 13, 15, 17, and 19 years old. A logistic regression was conducted to identify predictors of willingness to purchase a cigarette vending machine token for a 17-year-old. Independent variables included age, gender, smoking status, and parental status. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated to assess the strength and precision of associations.

RESULTS

Data was collected from 599 participants aged 18 to 81. Of these 372 (62.1%) were female, 205 (34.2%) were male, and 22 (3.7%) identified as non-binary, other, or declined to answer. The average age was 31.1 (SD = 12.7). 168 (28.3%) of respondents were current smokers, smoking daily or less than daily.

As can be seen from Table 1, 70 (12.1%) of respondents stated that they would purchase a cigarette vending machine token for someone aged 17, with another 50 (8.6%) responding that they were unsure. Although this figure declines dramatically for 15 and 13-year-olds, a small number of individuals report that they will even purchase a token for a 13-year-old.

A logistic regression model was used to examine factors influencing respondents' willingness to purchase a cigarette vending token for a 17-year-old. The model revealed that age difference and smoking status were statistically significant predictors. As the age gap between the respondent and a 17-year-old increased, the odds of agreeing to purchase a token decreased (OR = 0.88, 95% CI: 0.83–0.93, $p < 0.001$). Both current or occasional smokers (OR = 4.51, 95% CI: 2.43–8.38, $p < 0.001$) and

Table 1. Age-Based Responses to Cigarette Vending Machine Tokens

Age of Token Recipient	Response	Cigarette Vending Machine Token
19 years of age	Yes	234 (39.1%)
	Don't Know	47 (7.8%)
	No	305 (50.9%)
17 years of age	Yes	70 (11.7%)
	Don't Know	50 (8.3%)
	No	459 (76.6%)
15 years of age	Yes	9 (1.5%)
	Don't Know	20 (3.3%)
	No	551 (92.0%)
13 years of age	Yes	3 (0.5%)
	Don't Know	4 (0.7%)
	No	577 (96.3%)

former smokers (OR = 4.24, 95% CI: 1.95–9.21, $p < 0.001$) were significantly more likely to agree compared to those who had never smoked. In contrast, gender and parental status were not significantly associated with willingness to assist.

DISCUSSION

From a Public Health perspective, it is disconcerting that more than 12% of respondents reported being willing to purchase a cigarette vending machine token for an underage smoker. This research helps confirm the probability of such vending machines continuing to be a conduit for underage smokers to access cigarettes, either directly themselves or via a proxy, as explored in this research. This is an important issue as cigarette vending machines, although largely banned in many European countries, are common elsewhere. Tackling youth smoking is crucial given the development of nicotine addiction and the difficulty many people face in quitting smoking.

This study highlights the role of age and smoking experience in shaping attitudes toward underage cigarette access. Younger individuals and those with current or past smoking habits were more inclined to facilitate access via vending machines. The absence of significant associations with gender or parental status suggests that personal smoking history may be a stronger influence than social role. These findings raise concerns about how token-based systems may reduce perceived accountability and also support the forthcoming prohibition of cigarette vending machines in Ireland, in line with public health goals.

Globally, many countries have implemented outright bans on cigarette vending machines (12,13). Yet, Ireland still hosts over 4,600 such machines (20), despite their ability to circumnavigate some elements of tobacco control legislation (21). As noted above, current Irish regulations require token-based rather than cash-based purchases. The purchase of a token rather than the direct purchase of cigarettes for youth smokers may provide moral or psychological distance between buyers and the health risks involved (22,23). The legal age to purchase cigarettes in Ireland is currently 18, although it is set to rise to 21 in 2028 (24, 25).

The Irish government has repeatedly announced intentions to ban cigarette vending machines, with news reports on this issue dating back almost a decade (26,27). However, this legislation is expected to take effect in autumn 2025. Section 26 of the Public Health (Tobacco Products and Nicotine Inhaling Products) Act 2023 establishes that it is an offence to sell a nicotine inhaling product by means of self-service (28). The commencement order has been issued for this specific section, Article 2(a) of the *Public Health (Tobacco Products and Nicotine Inhaling Products) Act 2023 (Commencement) (No. 2) Order 2024 (S.I. No. 269 of 2024)* sets the commencement date as

29 September 2025. However, there is a long history of lax regulatory enforcement of public health-related legislation in Ireland (29-35). The threat of a potential U-turn by the Irish Government is of particular concern given both the recent deferment of forthcoming alcohol warning label legislation (36) and the dramatic reversal of pioneering tobacco control legislation in Aotearoa / New Zealand (37,38).

AUTHOR CONTRIBUTIONS

FH and JMS conceptualised the study and were responsible for data collection. AA performed the analysis and wrote the initial draft. All authors contributed to the draft, its refinement and revisions. All authors reviewed and approved the final text.

COMPETING INTERESTS

The authors declare no competing interests

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