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Vaping: How a New Generation Has Become Hooked on Nicotine

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Abstract:

This article delves into the unprecedented rise of vaping among teenagers, a trend that has gained significant traction in recent years. With the aim of providing a comprehensive analysis, it examines the factors specifically influencing teenagers' attraction to vaping, its impact on their health, and the unique regulatory challenges vaping poses in this demographic. Additionally, the article discusses the potential benefits and risks associated with vaping, including its perceived efficacy as a smoking cessation tool and the concerns regarding its long-term effects on the user's well-being and health.

Key Words:

Vaping; Teenagers; Smoking; Cigarettes; Harmful; Harming; Addiction

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Introduction

In 2020 the World Health Organization published a list of what they believed to be the biggest threats facing children in the modern world.¹ Among the problems identified were issues surrounding air pollution as a result of climate change, as well as problems associated with obesity. However, there was one threat that failed to be mentioned: vaping. According to Dr Mike McKean, vice-president of policy for the Royal College of Paediatricians and Child Health, vaping is becoming an “epidemic” among teenagers,² and it's not difficult to see why this description is being used. Walk past any British school and the odds are you will see young children sticking these rectangular pieces of plastic into their mouths only to exhale a grey vapour moments later. But what are vapes and how have they seemingly managed to hook this generation on a new form of nicotine?

History of the Vape

E-cigarettes were first created by Chinese pharmacist Hon Lik in 2003 as a way to help him cope with his nicotine addiction that had been formed due to cigarette use.³ At the time, options for those who wished to overcome nicotine addiction were limited as they often found that nicotine patches failed to offer the ‘hit’ that they were craving. However, Lik's creation was more similar to a traditional cigarette in both appearance and function whilst simultaneously satisfying the user's nicotine craving. E-cigarettes work by heating a liquid (called an e-liquid) that typically contains nicotine, propylene glycol, vegetable glycerine, and

flavourings. Furthermore, the fact that the nicotine is inhaled in a vapour form means that tobacco is not burnt and, therefore, neither tar nor carbon monoxide, two of the most damaging aspects of traditional smoking, is produced. These facts mean that vaping usage is undoubtedly better for the human body when compared to traditional cigarettes. One PubMed article researched how helpful vapes are compared to alternative methods when cigarette smokers are trying to quit cigarettes. The study estimated that, out of every 100 people who tried to quit smoking by vaping, nine to 14 might be successful.⁴ When only using other methods, such as nicotine patches or behavioural counselling, only four to seven smokers out of 100 might quit.⁴ Furthermore, according to the NHS, people are “roughly twice as likely to quit smoking if you use a vape compared with other nicotine replacement products, like patches and gum.”⁵ The article further states that switching to vaping “significantly reduces your exposure to toxins that can cause cancer, lung disease, and diseases of the heart and circulation like heart attack and stroke”.⁵ So, how did a seemingly beneficent and genuinely advantageous invention lead to a new generation of people developing a nicotine addiction?

Vapes vs Traditional Cigarettes

One common misconception that is held by those who vape is that the use of e-cigarettes is less damaging to the body when compared to traditional cigarettes – but how true is this? Whilst it is true that vapes have a lot less chemicals in them compared to the over 7,000 that are present in

traditional cigarettes, it doesn't mean that vapes are in any way healthy.⁶ E-cigarettes have no shortage of harmful chemicals too. According to the American Lung Association, e-cigarettes can contain acrolein (a herbicide primarily used to kill weeds which can cause irreversible lung damage), diacetyl (a chemical linked to a lung disease called bronchiolitis obliterans aka "popcorn lung"), diethylene glycol (a toxic chemical used in antifreeze that is linked to lung disease), as well as benzene (a volatile organic compound (VOC) found in car exhaust).^{7, 8} In addition to this, ultrafine particles are also present which mean that these harmful chemicals are able to be inhaled deeper into the lungs.⁹ The British Health Watchdog found that: "Almost 1,000 serious adverse reactions to e-cigs have been logged by Britain's health watchdog including blood, nervous system and respiratory disorders, as well as cancer and injuries like burns. This includes five deaths linked to the devices".¹⁰ But this is only a handful of the adverse effects of these new devices. A study in South Korea found that e-cigarette use was significantly associated with gum disease and that vaping may not be a safe alternative to smoking for oral health.¹¹ Teens are also more vulnerable to nicotine addiction compared to adults – this chemical can result in an array of various other issues.¹⁰ It is now considered the world's single biggest cause of preventable death.¹² An article written on PubMed Central titled 'Harmful effects of nicotine' listed some of the detrimental effects as "there is an increased risk of cardiovascular, respiratory, gastrointestinal disorders. There is decreased immune response and it also poses ill impacts on the reproductive health. It affects the cell proliferation, oxidative stress, apoptosis, DNA mutation by various mechanisms which leads to cancer".¹³ Johns Hopkins lung cancer surgeon Stephen Broderick highlights further horrific side effects of vaping, including lipoid pneumonia (a terrible condition with no "good treatment") and lung collapses (primary spontaneous pneumothorax), as well the potential to cause cancer.¹⁴ One study published on Medscape suggests that vaping may "worsen bronchitis and asthma, raise blood pressure, interfere with brain development in young users, suppress the immune system, and increase the risk of developing a chronic lung disease".¹⁵ Studies of mice and cell cultures have found that the vapor or extracts from vapes damage the chemical structure of DNA.¹⁶ Despite the damaging effects of vaping being evident, their use amongst children who have never smoked a cigarette before remains rampant.

The First Introduction of Vapes

From 2003 to 2009, vaping remained a relatively

uncommon activity that was almost exclusively used by those who were once traditional cigarette smokers. Once the government took notice of the numbers of smokers making this switch, it decided to endorse the new creation as an effective method of stopping smoking. One official information video from Public Health England advertises how "smokers who use e-cigarettes and get support from their local Stop Smoking service have the highest quit rates".¹⁷ A 2019 study of almost 900 people in the New England Journal of Medicine found that smokers who used vapes for cessation were twice as likely to have quit smoking cigarettes than those who used other nicotine replacement therapy.¹⁸ However, 80% of people who switched to vaping were using e-cigarettes a year after they tried to quit smoking.¹⁹ Another scheme set up by Public Health England offered smokers £25 vouchers to be used on vaping products.²⁰ However, statistics compiled by the charity Action on Smoking and Health (ASH) estimated that there are 4.3 million vapers in the UK and yet only about 2.4 million of these are ex-smokers.²¹ The same statistics also revealed that vape use among children is increasing as, in 2023, 20.5% of children had tried vaping, up from 15.8% in 2022 and 13.9% in 2020.²¹ So, what is behind this seemingly unexpected explosion in popularity for these new vapes?

The Increased Popularity of Vapes – Marketing

One factor behind this rise is the manner in which these devices are being marketed. "I think everyone agrees that marketing vaping, an addictive product, with... unknown consequences for developing minds, to children is utterly unacceptable," Prof Sir Chris Whitty told MPs. "Yet it is happening. There's no doubt it's happening because, although from a low base, the rates of vaping have doubled in the last couple of years among children. So that is an appalling situation".²² According to a BMJ article, for its launch in 2015, JUUL (the largest and most popular vape brand in the world) spent more than \$1 million to market the product on the internet.²³ Thanks to this funding, JUUL was transformed from a small, unknown vape brand into one that captured more than half of the e-cigarette market from the years 2015-7. The number of JUUL-related tweets skyrocketed from a monthly average of 765 in 2015 to a monthly average of 30,565 in 2017.²⁴ Additionally, vapes are available in a wide array of nicotine flavours from "cotton candy" to "lemon tart" in a clear bid to entice younger customers. Furthermore, brightly coloured packaging and devices further attract younger people to them. A King's College London and Action on Smoking and Health study of 2,469 11-to-18-year-olds and 12,026

adults found that teenagers were more likely to say their peers would have no interest in vapes when marketed in standardised white or green packaging, whereas adults said their interest was not reduced.²⁵ This simple statistic highlights just how instrumental vapes' marketing is when discussing children's use of vapes.

The Increased Popularity of Vapes – Access

Another factor that enables the youth to continue their new nicotine addiction is the ease at which they are able to access vapes. They are widely available to purchase online even through reputable sellers such as Amazon and eBay. Online, these e-cigarette products are often even mischaracterised as items that require no age verification, meaning that effectively anybody of any age would be able to acquire these devices inconspicuously. An Action on Smoking and Health study found that 10% of the vapes that were being used by children were purchased online.²¹ However, surprisingly, the most common way that children got their hands on these devices was actually by simply purchasing them from a shop. But how were 46.5% of underage vapers able to purchase these devices despite the sale of e-cigarettes containing nicotine to under-18s being banned?²¹ Firstly, some shops may simply choose to ignore the age-requirements or not pay attention to dubious fake IDs purely because the economic incentive is too great. Conversely, according to an article published in the House of Lords Library, "Trading standards officers have noted that e-cigarettes are sold in shops that have not previously sold alcohol or tobacco and staff were not always aware of age-verification requirements".²⁶ Once vapes are purchased, either through legal or illegal means, it is common for these vapes to find themselves in the hands of other younger users. In fact, the second most common way that children got access to vapes (43% of underage users) was by simply just being given them.²¹ Interestingly, quite a few vaping brands are owned by the tobacco companies they're trying to steer customers away from. For example, Blu and 10 Motives are actually owned by Big Tobacco, and Japan Tobacco International (JTI) bought UK e-cigarette brand E-lites in June 2014 from Zandera.²⁷ These aforementioned issues mean that it is easier than ever for young people to access vapes and consequentially develop a nicotine addiction.

The Increased Popularity of Vapes – Government Action

The lack of government action and regulations further means that the 'epidemic' of children vaping has no end in clear sight. In 2019, the UK government revealed its ambition for a 'smoke-free' England by 2030 – meaning that only 5% of the

population would be smoking cigarettes.²⁸ However, crucially, those who used vapes were not included in this statistic: this means that the government has no real ambition to cut the steeply rising number of vapers in the country. An independent government review into this 'smoke-free' ambition was published in June 2022. In it, it was said that "offering vaping as an alternative to smoking" was a "must do" to achieve 'smoke-free' by 2030.²⁹ This statement highlights the government's hesitancy to do anything about this emerging crisis. This British inaction is in stark contrast to the actions of other countries' governments. Several countries (Argentina, Brazil, North Korea, and Nepal) have outright banned vaping out of fears of it resulting in a new epidemic of young nicotine addicts. In the USA, one major vape brand, JUUL, was recently banned.³⁰ The Australian government made the radical decision to ban all vapes except on prescription to stem use in children. But here the government does not seem to do anything.

Conclusion

Vaping truly appears to be the biggest threat that faces this generation. However, governments and parents alike are seemingly unbothered by this new addiction. E-cigarette companies seem to view the youngest, most vulnerable people in society as nothing more than potential customers: the more vapour that these children inhale, the more money lines their pockets. Children are becoming dependant on these new devices, unable to stand the idea of going a mere few hours without the flavoured vapour flooding their body. The House of Lords Library article further states that "Chronic nicotine exposure can impact brain development. This can contribute to cognitive and attention deficit conditions and worsen mood disorders, including depression and suicidal thoughts".²⁶ It is clear that the use of vapes should be strongly discouraged at least, if not outrightly banned. This new craze is harming our children – when will we let it stop?

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