



Research paper

Nicotine control: E-cigarettes, smoking and addiction

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ABSTRACT

Background: Over the past year or so, electronic cigarettes, more commonly known as 'e-cigarettes', have achieved widespread visibility and growing popularity. These products, which deliver nicotine via an inhaled mist, have caused no small amount of controversy in public health circles, and their rise has been accompanied by energetic debate about their potential harms and benefits.

Methods: Interspersed with an analysis of current media coverage on e-cigarettes and the response of mainstream tobacco control and public health to these devices, this article examines the emergence of nicotine as both as an 'addiction' and a treatment for addiction.

Results: We argue that by delivering nicotine in way that resembles the visual spectacle and bodily pleasures of smoking, but without the harms of combustible tobacco, e-cigarettes highlight the complex status of nicotine as both a poison and remedy in contemporary public health and tobacco control.

Conclusion: In consequence, e-cigarettes jeopardize the carefully drawn distinctions between 'good' and 'bad' forms of nicotine.

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Introduction

In the recent film *The Tourist* we first meet Johnny Depp's character, Frank, through the eyes of Elise (Angelina Jolie), as he sits in a train carriage reading a spy novel and puffing on what appears to be a cigarette. For many viewers of the film, this was their first glimpse of an electronic cigarette, or 'e-cigarette', a device, as Frank quickly informs Elise, that is "not a real cigarette. It's electronic. It delivers the same amount of nicotine but the smoke is water vapour".¹

Invented by a Chinese pharmacist named Hon Lik in 2003, the e-cigarette was launched by the Chinese electronics company Ruyan Technology 3 years later, and received its first international patent in 2007 (Wikipedia, 2011). E-cigarettes now have a dedicated following amongst a small but growing number of users known as "vapers". The appearance of the e-cigarette in *The Tourist* marks a new visibility for the product – a visibility that has been accompanied by energetic debate about its potential harms and benefits.

Opinion on e-cigarettes has quickly polarised. For harm reduction organisations such as the Consumer Advocates for Smoke-Free Alternatives Association (CASAA) and the Australian Tobacco Alternatives Consumer Association (ATACA), along with a growing number of smokers themselves, e-cigarettes have been embraced

as a healthier alternative to smoking cigarettes. Advocates also highlight their ability to provide some of the non-nicotine rewards of smoking, such as sensory stimulation, and mouth and throat feel. A few health agencies have followed suit and deemed e-cigarettes a "far safer" alternative to smoking (e.g. NZ Ministry of Health, 2011). However, most mainstream public health organisations have condemned these products, some banning sales altogether (e.g. Health Canada, 2009) and others characterising them as "poison" and warning the public not to use them (e.g. Queensland Health, 2011). For these organisations, e-cigarettes represent the latest incarnation of the tobacco menace: an untested product with the potential to enslave ever-greater numbers of people (especially impressionable youth) to a dangerous addiction.

Despite the fact that e-cigarettes contain no tobacco (and in some cases, no nicotine), the World Health Organization has classified them as a tobacco product much along the lines of smokeless tobacco (WHO, 2011, p. 40). Initially, the US Food and Drug Administration (FDA) attempted to assert jurisdiction over e-cigarettes as a drug device; however, the US Court of Appeals overturned their decision in December of 2010. Therefore, the FDA is currently attempting to obtain jurisdiction over e-cigarettes as a tobacco product (Boen, 2011; Sullum, 2011). The European Union (EU) is similarly grappling with whether to regulate e-cigarettes as medical or tobacco products (Irish Central, 2011). The FDA and EU's difficulty in classifying e-cigarettes reflects the ambiguous middle ground these products occupy between medicinal forms of nicotine (i.e. nicotine replacement therapy, or 'NRT') and smokeless tobacco.

This paper examines the reception of e-cigarettes and seeks to understand why mainstream public health agencies and tobacco

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¹ Using heat, the implement vaporises a propylene glycol or glycerin-based liquid solution containing nicotine and/or added flavours into an inhaled mist that bears the physical appearance and sensation of inhaled tobacco smoke (Wikipedia, 2011).

control advocates have been so quick to condemn these products. Our analysis involves a critical reading of a range of texts, including media reports, policy briefs from health agencies and harm reduction organisations, vaper websites and blogs, journal articles and commentaries. Bill Godshall's Tobacco Harm Reduction Update listserv, which provides a weekly compilation of media coverage and policy developments regarding e-cigarettes (amongst other topics),² provided a key resource in identifying literature, supplemented by searches of Google Scholar. Although we have tried to capture the tenor of current debates about e-cigarettes, we make no claims to the comprehensiveness of our examination – an impossibility given the topicality of this issue and the speed with which new developments are occurring. Moreover, we have not restricted ourselves to literature on e-cigarettes, but have sought to locate our examination within a broader historical and cultural context, recognising that current responses to e-cigarettes are inextricably bound up with older debates about nicotine and the concept of addiction.

This article begins with an historical overview of tobacco and nicotine's distinctive relationship with the concept of addiction, and the rise of medicinal nicotine as a treatment for tobacco dependence and its perceived relationship to other forms of nicotine such as smokeless tobacco. Following this contextualisation, the second half of the paper focuses on the reception of e-cigarettes, which we suggest cannot be reduced exclusively to the untested nature of these products. Rather, much of the hostility e-cigarettes have engendered, we argue, stems from the instability these products crystallise in the ideological distinctions drawn between nicotine as either a 'poison' or a 'cure'.

Nicotine as an addictive drug

As is now well established, although nicotine is the addictive ingredient in tobacco, the harms associated with tobacco smoking stem primarily from the carcinogens in cigarette smoke (tar, carbon monoxide, etc.) rather than nicotine itself. The long-term effects of nicotine have not been well studied, and both its potential therapeutic benefits and its carcinogenic properties remain contested. Moreover, although nicotine addiction has become central to explaining the resilience of smoking amongst some sections of the population, the concept of tobacco 'addiction' is of relatively recent vintage and, as we go on to show, manifests important underlying ambiguities.

Nicotine was first isolated and named in 1828 and by 1889 researchers had begun studying its effects on the nervous system; by the turn of the twentieth century its role in incentivising smokers to smoke was taken for granted (Sullum, 1998). In 1942, based on the hypothesis that "Smoking tobacco is essentially a means of administering nicotine, just as smoking opium is a means of administering morphine", Johnston (1942, p. 742) found that injections of nicotine did reduce the urge to light up in smokers. However, although Johnston characterised the desire for nicotine as an "addiction", the comparison with opium has clear limits. Unlike opiate use, the psychoactive effects of nicotine are subtle and do not interfere with mental performance or hand-eye coordination. In fact, they have been shown to improve concentration and the performance of some cognitive tasks. Consequently, in contrast to other recreational drugs such as alcohol, heroin or cocaine, tobacco's main advantage is its compatibility with the requirements of everyday life (Keane, 2002).

Despite the pharmacological evidence of nicotine's addictiveness and the effects of smoking on health, smoking is incongruent

with dominant models of addiction, both medical and popular. As Room (2003) has argued, one of the cultural functions of the concept of addiction is to provide a causal explanation for bad behaviour. Addiction is seen as a kind of possession, in which a powerful drug is able to produce behaviour that would not otherwise occur. But whilst smokers may be dependent on a drug to function, their lives generally appear ordinary, orderly and productive. Because cigarettes do not produce intoxication and remain legal and relatively easy to access, smokers do not fit the stereotype of the out-of-control junkie governed by an unmanageable desire, at least until they try to quit (Keane, 2002). Indeed, in accounts of quitting, it is the effects of giving up, at least in the short term, that render the smoker physically debilitated, psychologically distressed and prone to erratic and uncharacteristic behaviour.

Because of these anomalies, it was only relatively recently that tobacco use was officially identified as an 'addiction'. As Berridge (1998) has shown, in the British context, tobacco was historically seen to be associated with dependence rather than addiction *per se*. Tobacco therefore emerged as a policy focus through chest medicine and epidemiology rather than psychiatry. The importation of tobacco into the addiction frame only took place in the 1990s, primarily due to the influence of US models (Berridge, 1998, p. 157). Although tobacco was drawn into the addiction realm earlier in the USA, the 1964 Surgeon General's Report characterised "the tobacco habit" as a "habituation" related primarily to social and psychological drives rather than an "addiction" (Luik, 1996; Parascandola, 2011).

The growing characterisation of smoking as a manifestation of nicotine addiction was connected with the development of research on the pharmacology and biology of smoking in the 1980s (Parascandola, 2011). Revelations in the mid 1990s about the tobacco industry's clandestine manipulation of their products' nicotine levels in order to maintain their addictiveness reinforced the status of nicotine as a tool of the "dark forces" and an enemy of public health (Parascandola, 2011). However, the collapse of the distinction between dependence and addiction in the tobacco field is also connected with broader shifts in diagnostic instruments and practises, encapsulated in the decision to remove reference to "addiction" from the revised third edition of the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-III-R), published in 1987. Instead, "dependence" became the preferred catchall label because of concerns about the pejorative implications of the former term (O'Brien, Volkow, & Li, 2006). Importantly, part of the logic of favouring the term "dependence" over "addiction" was that "this was a more neutral term that could easily apply to all drugs, including alcohol and nicotine" (O'Brien et al., 2006, p. 764, emphasis ours).

Yet, although tobacco dependence is recognised as a specific disorder in the current editions of the DSM-IV TR and the WHO's classification of diseases (ICD-10), smokers are unlikely to conform to many of the generic criteria listed for substance dependence. These criteria were developed from research and observations regarding alcohol and opiate use and there is a consequent emphasis on disordered behaviour and social harms, such as failure to fulfil role responsibilities (APA, 2000). When a dependence criterion from the DSM such as "a great deal of time is spent in activities necessary to obtain the substance" is illustrated with the example of chain smoking, the distinctiveness of smoking is highlighted rather than undermined, for chain smoking is likely to be combined with other activities, including work and study, rather than taking up time on its own. Therefore, it is not surprising that the "DSM assessment of tobacco dependence has languished" (Hughes, Baker, Breslau, Covey, & Shiffman, 2011, p. 894).

The uneasy fit between tobacco use and contemporary notions of dependence and addiction may be one of the reasons why

² Although the listserv has a harm reduction agenda, it covers both positive and negative depictions of e-cigarettes.

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