Flavours, ingredients and flavour bans

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This collection of papers highlights the important role played by flavourings and other ingredients in the appeal and attractiveness of tobacco products. Focusing on product composition, Pennings et al1 reviewed chemical data for thousands of products to show that e-liquid formulations are complex and that salt-based formulations contain substantially more individual compounds in greater concentration than free-base formulations, an important consideration that may also contribute to the apparently greater appeal of salt-based e-cigarettes (Juul and similar products). Bernat and colleagues2 reviewed available methods for assessing the sensory properties of tobacco products, identifying six themes and highlighting the role of flavours specifically, and sensory properties more broadly (including interaction with nicotine), in the appeal and perceptions of tobacco and nicotine products. Advertising and promotion continue to influence consumer perceptions—for example, Shi et al3 provide important biobehavioural evidence around the potential role of pack colour in priming smoking cue reactivity. New ads emphasising ‘plant-based’ origins for menthol in Winston cigarettes4 leverage the general prohealth associations of plants and are part of a broader interplay among food and tobacco descriptors and health perceptions.5

An important subset of the flavoured product market is flavour capsule cigarettes, available in many global markets. Van der Eijk et al6 reviewed internal documents and publicly available patents to outline how tobacco manufacturers have developed flavour capsule products (dating back to the 1960s) to target younger consumers and that held patents may indicate future directions (eg, loose flavour capsules) that could increase appeal and circumvent flavoured product bans. These products are typically promoted as innovative via a comprehensive marketing mix, and often their introduction coincides with tobacco control policies in low- and middle-income countries.7 Capsule cigarette use was noted to be highest in Latin American markets, particularly among younger people, and they are often perceived as better tasting, smoother and more attractive.8 Consistent with these reviews, Brown and colleagues,9 in an experimental study among adolescents and young adults in Mexico, showed that participants found capsule imagery appealing and that these features in combination with colours on packaging and ‘concept’ flavour descriptors increase attractiveness and interest in trial.

FLAVOURED PRODUCT BANS/RESTRICTIONS

Banning or restricting the use of flavours in some or all tobacco products has been an active area of policy-making and research. Levy and colleagues10 provide strong modelling support for the implementation of a ban on menthol in cigarettes and cigars in the USA, projecting it could prevent over 650,000 premature deaths and avert 11 million life-years lost over a 40-year window. Payán et al11 showed majority support for flavoured product bans in a rural California sample. Meich and colleagues12 show that within the USA, menthol cigarette use among adolescents is down substantially from 2012 to 2020, with the past 30 day use below 5% prevalence, even among Black adolescents, but suggest that bans could bring this down further. Using the Population Assessment of Tobacco and Health (PATH) cohort, Leas and colleagues13 showed that adults who smoked menthol cigarettes prior to a quit attempt were less likely to achieve 30-day and 12-month abstinence, while switching away from menthol (compared with maintaining menthol status) increased odds of abstinence. This suggests that menthol bans could support successful quit attempts among those who currently smoke menthol cigarettes.

Among adults who used cigarettes, Dyer and colleagues14 demonstrated experimentally that flavoured e-cigarettes did not reduce average, peak or cue-induced cigarette craving or affect intentions or motivations to quit, after a week of use, undermining a common argument for the continued availability of flavoured e-cigarettes (ie, as an aid in smoking cessation). Yang et al15, using discrete choice experiments, showed that while adults who use e-cigarettes tend to prefer non-tobacco, non-menthol flavours, they were unlikely to report an intention to switch to other tobacco or nicotine products in response to a flavour ban.

Despite evidentiary and public support, flavour bans can vary in comprehensiveness and thus effectiveness. Donovan and colleagues16 developed and applied a tool for assessing the comprehensiveness of subnational flavour restrictions in the USA, finding that only about one in four policies addressed all tobacco product and retailer categories, leaving potential avenues for avoidance. Data from the UK after implementation of the European Union menthol cigarette ban (Kock et al17) show that while the proportion of menthol smokers declined, a substantial minority still reported menthol use 1 year later, suggesting the continued availability of menthol products or products designed to circumvent the ban, underscoring the need for continued monitoring. Liu et al18 highlight challenges in short-term evaluation of the impacts of policy changes around flavoured tobacco products using publicly available data, in this case the timing of surveys relative to policy implementation.

Industry has also responded to regulations, including promotion of tobacco-free nicotine pouches as a means to avoid flavour bans19. Jordan points to the emergence of synthetic nicotine products (not derived from tobacco) as a challenge to tobacco control, highlighting that manufacturers will continue to evolve and identify potential loopholes in regulatory schemes. Indeed, Puff Bar and its imitators20 emerged in the wake of the Food and Drug Administration’s restriction on flavours in pod-based e-cigarettes and are available in over 100 flavours, with one variety (Puff Krush) labelled as ‘clear’ (unflavoured) and designed to be used with postmarket flavour enhancer caps.20 These findings underscore the risk of unintended effects of less comprehensive flavour policies.

In all, the assembled papers contribute to the growing evidence base around design factors contributing to the appeal and attractiveness of tobacco and nicotine products and provide support for comprehensive regulation of the use of flavourings. Continued research on the contribution of flavours, particularly the composition and perceptions of ‘tobacco’ flavouring in products such as e-cigarettes, will be needed. As flavour restrictions proliferate, surveillance and impact assessment remain critical to maximising public health benefit.

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