Project Details	
Project Code	MRCNMH26Ba Khouja
Title	Investigating how addiction to vaping compares to addiction to smoking
Research Theme	NMH
Project Type	Dry lab
Summary	Vaping is less harmful than smoking and can help people stop smoking, but many people report feeling more addicted to vaping, describing constant use and difficulty putting their vape down. Existing measures of vaping addiction may overlook important behavioural aspects, making it harder to support those who want to stop. This project will explore how vaping and smoking addiction compare, assess whether current tools reflect users' experiences, and develop an improved measure of vaping addiction. It will also track longitudinal changes in nicotine dependence and behaviour when people switch from smoking to vaping.
Description	**Background** Vaping nicotine is less harmful than smoking cigarettes, and can help people to stop smoking. However, many people report feeling more addicted to vaping than they were to smoking, describe constant use and have difficulty putting their vape down. This behaviour could be due to nicotine dependence, but some people who use nicotine-free vapes also report a pattern of use that could be described as addiction. There are many definitions of addiction, but broadly speaking, the term refers to a chronic condition characterised by persistent use of a product or engagement in a behaviour despite experiencing harm as a result. In the context of vaping, the harms are not fully understood, but some report difficulty concentrating at school or work, headaches, sore throat and coughs, and some believe that serious conditions like lung injury or pneumonia were caused by their vaping. Existing measures of vaping addiction tend to focus on nicotine dependence rather than behavioural addiction and have primarily been adapted from measures assessing addiction to smoking that may not apply to vaping behaviour. For example, the Fagerström Test of E-Cigarette Dependence (e-FTCD) and the Penn State Electronic Cigarette Dependence Index (ECDI), which were both adapted from smoking dependence measures, both ask vapers to calculate how many times per day they vape, assuming that one "time" consists of around 15 puffs or lasts around 10 minutes. This is very difficult for vapers to calculate, given that they identify the automatic and subconscious nature of their vaping behaviour as a reason for feeling addicted. The E-cigarette Dependence Scale and Wisconsin Inventory of Smoking Dependence Motives (e-WISDM) better address the automatic nature of vaping addiction with the question, "I find myself reaching for my e-cigarette without thinking about it", but also quite heavily focus on urges to vape, which many vapers report not feeling as often because they can always vape. The Self-Report Habit Index (SRHI) focuses solely on the automatic and habitual elements of vaping addiction, however, it was created to measure habitual use of marijuana, alcohol and tobacco cigarettes, so it may not include items that are unique to e-cigarette addiction. There is a need to assess how smoking and vaping addiction differ, and it may be necessary to create a new vaping addiction assessment to account for these differences. Effective vaping addiction assessments, that

	incorporate behavioural aspects specific to vaping, could improve the identification and support provision for individuals who are addicted to vaping and want to stop (including those who switch from smoking and those who do not vape nicotine). Many vapers feel like they are more addicted to vaping/nicotine after switching from smoking. Still, evidence suggests that when people switch, their nicotine levels remain stable over time despite increases in self-reported feelings of addiction to nicotine. Identifying whether nicotine intake, nicotine dependence or behavioural addiction is driving this perception could change what support we offer individuals who want to stop vaping after stopping smoking. **Aims and objectives** This project aims to evaluate and improve the assessment of vaping addiction and develop a clearer understanding of the impact of switching from smoking to vaping on addiction to either behaviour. The student will achieve this through the following objectives: 1. Define 'vaping addiction' as a construct and conduct a systematic review of the assessment methods and scales that aim to assess vaping addiction or dependence. 2. In an online study and with public involvement, assess whether current assessments and scales that aim to assess vaping addiction and dependence reflect users' experiences and whether these tools can capture behavioural addiction among vapers with different nicotine exposure profiles (e.g., non-nicotine vapers vs nicotine vapers). In this objective, the student will use appropriate methods, such as logistic regression. 3. If the current assessments are not reflecting users' experiences, develop and test an improved measure of vaping addiction, exploring reliability, validity, and using factor analysis as well as involving people with lived experience. 4. Conduct a longitudinal study with smokers willing to stop smoking using e-cigarettes to track longitudinal changes in nicotine exposure (measured by cotinine in saliva or urine), nicotine dependence, vaping addiction, and self-reported experiences of addiction. Ownership and steer The student will be encouraged to adapt the planned studies based on the findings after completion of each objective. If objective three is not necessary, the student will be asked to develop an alternative study that addresses the overarching aim of the project and that further explores their findings up to that point. They will also involve the public throughout the project and will consider their feedback during study development. They will lead on the dissemination of the findings, including designing and running public engagement events.
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