

Published in final edited form as:

Addiction. 2013 November ; 108(11): 1886–1887. doi:10.1111/add.12317.

Are Waterpipe Users Tobacco Dependent?

Olivia M. Maynard, Suzanne H Gage, and Marcus R. Munafò

¹MRC Integrative Epidemiology Unit, UK Centre for Tobacco and Alcohol Studies, and School of Experimental Psychology, University of Bristol, United Kingdom

²MRC Integrative Epidemiology Unit, UK Centre for Tobacco and Alcohol Studies, and School of Social and Community Medicine, University of Bristol, United Kingdom

Jawad and colleagues (1) argue that waterpipe tobacco smoking has the potential to become the next public health priority, as the global prevalence of waterpipe smoking is increasing, especially among younger users. They note that, across a number of geographical regions, users typically lack knowledge about the health risks of waterpipe tobacco smoking. A number of misbeliefs appear to be common, such as that the water in the waterpipe bowl acts as a filter for harmful chemicals, that waterpipe tobacco has fewer toxic chemicals than cigarettes, and that the aromatic flavour and smell of waterpipe tobacco (something that is regulated for cigarettes in many countries) implies safety. Although these misbeliefs are worrying, there is also a lack of reliable evidence on the health effects of waterpipe tobacco smoking. There have been relatively few studies investigating the effect of waterpipe tobacco smoking on health, and those that have been conducted are typically of limited quality. Similarly, research on the relative level of toxicant exposure resulting from waterpipe tobacco smoking (compared with cigarette smoking) is misleading, due to the differing patterns of use between the two. In many groups, particularly those where it is a recent phenomenon, waterpipe is often infrequent and more social in nature. It may therefore not be associated with the same pattern of dependence seen in regular, habitual cigarette smokers.

We agree that any form of tobacco use which is growing in popularity represents a public health concern. However, we also believe that some of the potential harms of waterpipe tobacco smoking highlighted by Jawad and colleagues may be over-stated. In our opinion, efforts to tackle the increase in waterpipe tobacco smoking globally will be best served by accurately representing the potential harms of this form of tobacco use, and placing these in the wider context of harms associated with other forms of tobacco use (2). Indeed, tobacco harm reduction relies on an accurate understanding of the relative harms of different forms of tobacco use, so that the least harmful can be promoted over the most harmful (3). In our opinion, harm reduction strategies are likely to result in better health outcomes than *only* encouraging people to abstain entirely.

In particular, we do not think that waterpipe tobacco smoking is likely to be associated with high levels of dependence in many of the populations where use is increasing. Certainly

there is evidence that waterpipe tobacco smoking can deliver nicotine at levels equivalent to cigarette smoking. Also, as with cigarette smoking, the inhalation of tobacco smoke will result in very rapid delivery of nicotine to the brain, so that it should be considered to have high dependence liability *in principle*. However, this comparison with cigarette smoking is artificial *in practice*, given that the pattern of use of waterpipe tobacco is often not the same as for cigarettes. The majority of users smoke waterpipe infrequently, almost half of all lifetime users have only smoked waterpipe up to three times, and waterpipe is often smoked only in social situations, rather than habitually to alleviate cravings. Waterpipe tobacco smoking therefore does not appear to be associated with the frequent and repetitive pattern of consumption typical of high levels of dependence. For example, there is clear evidence that time to first cigarette (in particular smoking the first cigarette of the day within 30 minutes of waking) is an important marker of tobacco dependence (4), and predicts related outcomes such as cotinine levels (5) and the ability to quit smoking (6). This pattern of use – smoking soon after waking and then repeatedly at regular intervals over the course of the day – is rarely seen in waterpipe tobacco smokers, in particular those in Western countries who have recently taken up this form of tobacco use.

The key point here is that much of the harm associated with cigarette use is driven by dependence, leading to an escalation of use over time, sustained use over extended periods (resulting in high levels of lifetime exposure) and difficulty quitting. It's unclear whether similar patterns of behaviour are seen in waterpipe tobacco users. We also know that quitting reverses many of the harms associated with smoking (7), and that quitting is easier in non-dependent smokers (6). We therefore need more evidence on whether waterpipe use escalates over time, particular in those populations who have recently taken up this form of smoking, whether waterpipe smokers find it difficult to quit, and so on. It will also be important to know whether waterpipe is used in combination with other forms of tobacco. This is not to downplay the potential public health impact of increasing prevalence of waterpipe tobacco smoking, particularly among younger users. Any form of tobacco which is burned and inhaled is considerably more harmful than (most) smokeless products, which in turn are more harmful than non-tobacco nicotine-containing products.

Cigarettes have been heavily regulated over the past few decades, with 177 countries ratifying and implementing aspects of the World Health Organisation Framework Convention for Tobacco Control (FCTC) (8), but waterpipe tobacco smoking has been largely exempt from this regulatory framework. In many countries, waterpipe tobacco remains free from health warnings (9), is not subject to public health campaigns, can include a number of additives and flavouring prohibited in other forms of tobacco (10), and is not covered by smokefree legislation (11). While cigarette use is decreasing in many regions across the world, waterpipe use is increasing. This is likely to be the result of poor knowledge of the health consequences of smoking waterpipe tobacco, and the lenient regulatory framework in many countries. In the absence of accurate information on the health risks of waterpipe tobacco smoking, this lack of regulation is likely to perpetuate misbeliefs about the associated harms.

Acknowledgments

Olivia Maynard, Suzanne Gage and Marcus Munafò are members of the UK Centre for Tobacco and Alcohol Studies, a UKCRC Public Health Research: Centre of Excellence. Funding from the British Heart Foundation, Cancer Research UK, Economic and Social Research Council, Medical Research Council, and the National Institute for Health Research, under the auspices of the UK Clinical Research Collaboration, is gratefully acknowledged.

References

1. Jawad M, McEwen A, McNeill A, Shahab L. To what extent should waterpipe tobacco smoking become a public health priority? *Addiction*. 2013 [PubMed: 23863044]
2. Nutt DJ. Equasy - an overlooked addiction with implications for the current debate on drug harms. *J Psychopharmacol*. 2009; 23:3–5. [PubMed: 19158127]
3. McNeill A, Munafò MR. Reducing harm from tobacco use. *J Psychopharmacol*. 2013; 27:13–8. [PubMed: 23035032]
4. Schnoll RA, Goren A, Annunziata K, Suaya JA. The prevalence, predictors, and associated health outcomes of high nicotine dependence using three measures among US smokers. *Addiction*. 2013
5. Muscat JE, Stellman SD, Caraballo RS, Richie JP Jr. Time to first cigarette after waking predicts cotinine levels. *Cancer Epidemiol Biomarkers Prev*. 2009; 18:3415–20. [PubMed: 19959690]
6. Baker TB, Piper ME, McCarthy DE, et al. Time to first cigarette in the morning as an index of ability to quit smoking: implications for nicotine dependence. *Nicotine Tob Res*. 2007; 9(Suppl 4):S555–70. [PubMed: 18067032]
7. Doll R, Peto R, Boreham J, Sutherland I. Mortality in relation to smoking: 50 years' observations on male British doctors. *BMJ*. 2004; 328:1519. [PubMed: 15213107]
8. World-Health-Organisation. WHO Framework Convention on Tobacco Control. Geneva, Switzerland: World Health Organisation; 2005.
9. Nakkash R, Khalil J. Health warning labelling practices on narghile (shisha, hookah) waterpipe tobacco products and related accessories. *Tob Control*. 2010; 19:235–9. [PubMed: 20501497]
10. Morris DS, Fiala SC, Pawlak R. Opportunities for policy interventions to reduce youth hookah smoking in the United States. *Prev Chronic Dis*. 2012; 9:E165. [PubMed: 23153772]
11. Primack BA, Hopkins M, Hallett C, et al. US health policy related to hookah tobacco smoking. *Am J Public Health*. 2012; 102:e47–51. [PubMed: 22827447]