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Waterpipes

www.ash.org.uk

enquiries@ash.org.uk

Telephone: 020 7739 5902

Definition and usage

Waterpipes, also known as hookahs, narghiles, shisha or hubble-bubble pipes have long been used for smoking tobacco in the Middle East and parts of Africa and Asia.

Waterpipe smoking is often a social activity and two or more people may share the same pipe. In some cultures, children may smoke with their parents. Although their usage appeared to be declining by the mid 1980's, more recently there has been an upturn in their popularity in the eastern Mediterranean region and hookah cafes and bars are also beginning to appear in North America, Brazil and Europe. A study of Parisian schoolchildren found that more than half of 16 year olds had tried shisha once and 25% reported smoking it occasionally.¹ Waterpipe smoking appears to be particularly popular among students and young people who enjoy the novelty and conviviality of sharing the waterpipe, although in some countries many young people appear to be even unaware that it contains tobacco.² Young women, in particular, are being targeted in some Middle Eastern countries with custom-made flavoured tobacco for use with waterpipes.^{3 4}

What are waterpipes?

Waterpipes generally consist of a head, body, water bowl and hose. Tobacco, which may be flavoured with fruits and sugar syrup, is placed in the head and often covered with perforated aluminium foil. Burning charcoal is placed on top of the foil. Water is placed in the bowl, submerging a tube through which smoke leaves. Sucking on the hose causes a vacuum in the air space above the water, causing smoke to pass through the water producing bubbles (hence the common name "hubble-bubble"). Disposable mouthpieces may be attached to the end of the hose to reduce the risk of infection. The size of the waterpipe, number of hoses and other features may vary.



Health impact

Because the smoke passes through the water before the smoker inhales it, there is a common misconception that the water "filters out" the harmful substances in tobacco smoke. Also the use of herbs or fruits as flavourings masks the harshness of the tobacco, leading some users to believe that they are smoking a herbal product that appears less hazardous than

conventionally smoked tobacco products. However, waterpipe tobacco smoking delivers nicotine, and, as is common with other tobacco products, frequent use is associated with users reporting that they are addicted. Furthermore, even after it has been passed through water, the smoke from a waterpipe contains high levels of toxic compounds including carbon monoxide, heavy metals, and cancer-causing chemicals.⁵

Although waterpipe smoking has not been as extensively researched as cigarette smoking, preliminary research suggests that it is associated with many of the same risks as cigarette smoking and may incur some unique health risks. Nicotine dependence may also result from repeated inhalation of smoke from a waterpipe since users receive comparable or higher doses of nicotine compared to cigarette smokers.⁵ A laboratory based study compared exposure to waterpipe toxicants with cigarette smoking among 31 participants aged between 18 and 50. Each person completed two 45-minute sessions, one in which they smoked tobacco using a waterpipe and the other in which they smoked a single cigarette. The level of nicotine and carbon monoxide was measured in the participants' blood, as was heart rate, puff number and puff volume. The researchers found that on average, expired air carbon monoxide levels increased by 23.9 ppm for waterpipe use and 2.7 ppm for cigarette smoking. Peak nicotine levels did not differ significantly between use of waterpipes or cigarettes but carboxyhemoglobin levels were three times greater after use of the waterpipe than that observed after smoking a cigarette.⁶

Short term health effects

After 45 minutes of waterpipe use, expired air carbon monoxide, plasma nicotine and heart rate are substantially increased. Thus waterpipe usage is likely to exert a similar cardiovascular response to that of cigarette smoking.⁵

Longer term health effects

Whilst the health impacts of waterpipe usage appear to be at least as comparable to those of cigarette smoking, research is complicated by the fact that many users are also cigarette smokers. However, evidence suggests that water pipe usage is likely to increase the risk of cancers of the lung, mouth and bladder. It is also associated with markers for cardiovascular disease and respiratory disorders.⁵

Waterpipe users appear to be at increased risk of mouth and gum disease. A study in Saudi Arabia found that the relative risk for periodontal disease increased by 5-fold and 3.8-fold in waterpipe and cigarette smokers respectively, compared to non-smokers.⁷ Sharing a waterpipe mouthpiece also poses a serious risk of transmission of communicable diseases, including tuberculosis and hepatitis.

Secondhand smoke from waterpipes

The smoke from waterpipes is a mixture of tobacco smoke exhaled by the smoker plus smoke from the fuel used to heat the pipe, thus posing a serious risk to the health of non-smokers. Children are particularly vulnerable to the effects of passive smoking. Because they spend a considerable amount of time at home, they may be at risk for waterpipe smoke exposure in homes where such devices are used. A survey in Syria found that almost half (48.4%) of heavy users (those who smoked at least once a day) did so mainly in the home.⁸ New research has shown that a single waterpipe use session emits in the sidestream smoke approximately four times the carcinogenic PAH, four times the volatile aldehydes and 30 times the CO of a single cigarette. The authors conclude that, given a habitual smoker smoking rate of 2 cigarettes an hour, during a one-hour waterpipe use session a waterpipe smoker is likely to generate ambient carcinogens and toxicants equivalent to 2-10 cigarette smokers.

Public policy implications

Although research into the health impacts of prolonged waterpipe usage is still in its infancy, there is now enough evidence of its harm to include waterpipe smoking in public smoking bans. In countries where there is a tradition of using waterpipes, work to change cultural norms and attitudes will be required alongside any proscriptive laws and regulations. However in countries where waterpipe usage is still a novelty, public health advocates should seize the opportunity to limit its spread through a combination of education and legal measures. Laws to ban or restrict smoking in public places should be drafted to ensure that waterpipes are covered by the relevant legislation. Waterpipe use in enclosed public places in the United Kingdom has been prohibited since July 2007.

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