



WATERPIPE TOBACCO SMOKING & HEALTH¹

What is waterpipe tobacco smoking?

Waterpipe tobacco smoking is a form of tobacco consumption that utilizes a single or multi-stemmed instrument to smoke flavoured or non-flavoured tobacco, where smoke is designed to pass through water or other liquid before reaching the smoker.

Are “e-hookahs”, “e-shisha” or “hookah pens” also waterpipes?

No. “E-hookahs”, “e-shisha” or “hookah pens” are electronic nicotine delivery systems. These devices do not involve charcoal combustion; rather, a sweetened liquid usually containing nicotine is electrically heated to create an aerosol that is then inhaled. Research is currently being done on these devices.

Who is using waterpipe tobacco?

Historically, waterpipes have been in use by the indigenous people of Africa and Asia for at least four centuries⁽¹⁾. In the late 19th century and the earlier part of the 20th century, waterpipe tobacco smoking was popular among older men in the Middle East who used primarily the harsh non-flavoured tobacco, which was repulsive to youth. However, the introduction of flavoured tobacco in the early 1990’s rapidly escalated the use among young people, starting in the Middle East⁽²⁾,

and expanding to other countries and continents, mainly through universities and schools⁽³⁻⁵⁾. In many countries, waterpipe smoking is not monitored specifically; however, a systematic review of studies of the prevalence of waterpipe smoking in various populations and subpopulations showed alarmingly high numbers, especially among high-school and university students of Middle Eastern descent⁽⁶⁻⁸⁾.

The Eastern Mediterranean Region (which includes Middle Eastern and North African countries) has the highest prevalence of waterpipe use in the world⁽⁹⁾, especially among young people^(10, 11). Among children 13-15 year old from various Eastern Mediterranean Region countries, the prevalence of waterpipe smoking ranged from 9% to 15%⁽¹²⁾. Furthermore, there are data indicating rapid increases in prevalence; in one longitudinal study of smoking among young people in the Region, the prevalence of waterpipe smoking increased by 40% within 2 years of follow-up (from 13.3% to 18.9%; $p < 0.01$)⁽¹³⁾.

Across the other WHO Regions, where data are available, waterpipe tobacco smoking generally is less common than cigarette smoking⁽¹⁴⁾. Waterpipe users tend to be younger and more affluent, except in India and Vietnam,² where the users are more likely to be older, rural males with lower educational attainment, similar to the epidemiological profile reflecting the old tradition of waterpipe smoking in the Middle East. Empirical and anecdotal evidence portend future increases in prevalence, especially as hookah cafes proliferate globally.

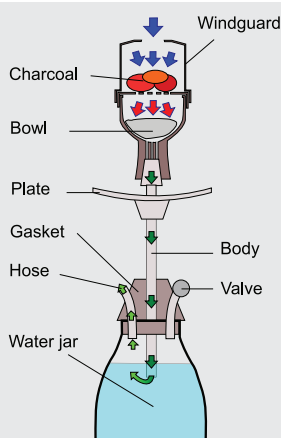


Figure 1. Waterpipe components

The waterpipe, also known as “narghileh”, “shisha” or “hookah”, consists of a head or tobacco bowl in which tobacco is placed, a body, a water bowl, a hose and a mouthpiece. Charcoal or a briquette is placed on top of the tobacco-filled head, often separated from the tobacco by a perforated aluminium foil sheet. After the head or tobacco bowl is loaded and the charcoal lit, the smoker inhales through the hose, drawing air into and around the charcoal. The resulting heated air, which also contains charcoal combustion products, then passes through the tobacco, which produces the mainstream smoke aerosol as it is heated. The smoke passes through the waterpipe body, bubbles through the water (or, on occasion, alcohol or soft drinks) in the bowl and is carried through the hose to the smoker. Some waterpipes have multiple mouthpieces; others have a communal mouthpiece that is shared by all the smokers.

(Waterpipe illustration is a public domain image available at <http://commons.wikimedia.org/wiki/File:Hookah-lookthrough.svg>)

¹ Adapted from the WHO Advisory Note on waterpipe tobacco smoking: health effects, research needs and recommended actions for regulator (2nd edition, 2015).

² Waterpipe tobacco smoking in Asia involves “bong” waterpipes (Figure 2), which are different from traditional Arabic waterpipes.

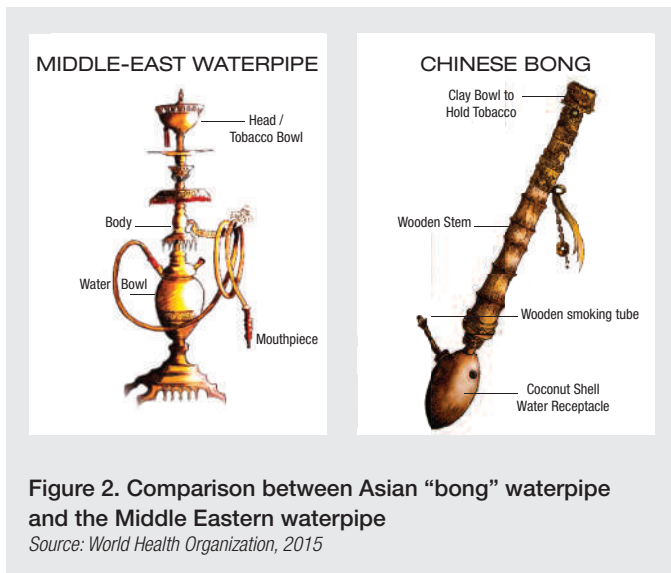


Figure 2. Comparison between Asian “bong” waterpipe and the Middle Eastern waterpipe

Source: World Health Organization, 2015

Why is waterpipe tobacco smoking becoming more popular, especially among young people?

Some of the distinctive factors that appear to contribute to the growing popularity of waterpipe tobacco smoking include:

1. Introduction of flavoured tobacco (maassel) - The introduction of sweetened flavoured waterpipe tobacco, commonly called maassel, in the 1990's appears temporally related to the surge in popularity of waterpipe smoking⁽¹⁵⁾. Previous to maassel, waterpipe smokers used raw tobacco in their pipes. The strong and harsh smoke from raw tobacco contrasts markedly with the smooth aromatic smoke produced from maassel. Maassel comes in many flavours and simplifies waterpipe preparation⁽¹⁶⁾. Global data indicate that most waterpipe smokers, particularly the young users, prefer maassel for use in waterpipes⁽¹⁷⁻¹⁹⁾.
2. Social acceptability due to the café and restaurant culture – Sharing a waterpipe is a widespread practice, especially among young people^(16, 17, 20), and cafés and restaurants have capitalized on this by incorporating waterpipes into their menu of services. The “Ramadan tents” in the 1990s were a special form of café that provided a social venue during the Muslim holy month of Ramadan⁽²¹⁾. Waterpipes became the centrepieces of these settings, legitimizing their use in social gatherings. Waterpipe cafés and restaurants are proliferating around the world, fostering this form of tobacco consumption^(20, 22, 23).
3. Promotion through mass communication and social media – Traditional and new media and the Internet are devoting increasing air time to waterpipe tobacco smoking, often depicting the practice in a positive way. One analysis of cigarette- and waterpipe-related YouTube videos showed that user-generated videos of waterpipe use were less likely to acknowledge the negative health consequences of smoking than cigarette videos⁽²⁴⁾. In addition, marketers and vendors of waterpipe and waterpipe tobacco are using the Internet and social media to advertise their products in the guise of blogs and postings by interest groups⁽²⁵⁾.
4. Lack of waterpipe-specific policy and regulations – Waterpipe products and venues are often exempt from tobacco control policies; where policies exist, especially in the developing world, the lack of enforcement renders waterpipe-related policies ineffective^(26, 27).
5. Erroneous perceptions about the relative safety of waterpipe smoking – The belief that drawing tobacco smoke through water makes waterpipe smoking less harmful than cigarette smoking is widespread, and contributes to its growing popularity and acceptability⁽²⁸⁾.

Is waterpipe tobacco smoking dangerous to health?

- **Waterpipe smoke is toxic.** Laboratory analyses of waterpipe smoke reveal measurable levels of carcinogens (including tobacco-specific nitrosamines, polycyclic aromatic hydrocarbons [PAH], volatile aldehydes like formaldehyde, and benzene), and toxicants such as nitric oxide and heavy metals. Additionally, the burning charcoal generates high levels of carbon monoxide (CO) and carcinogenic PAH⁽²⁹⁾. These toxic substances have been linked to addiction, heart and lung diseases, and cancer in cigarette smokers and can result in similar outcomes in waterpipe users if these toxicants are absorbed in the body in appreciable amounts⁽³⁰⁾.
- **Waterpipe smokers absorb toxicants and carcinogens in waterpipe smoke in appreciable amounts.** Data from biomarker assays that measure toxicant and carcinogen levels in the blood and urine of users demonstrate that waterpipe smoking results in significant exposure to these compounds. Waterpipe smokers have much greater exposure to CO, significantly greater exposure to PAH, similar exposure to nicotine and significantly lower exposure to tobacco-specific nitrosamines than cigarette smokers^(31, 32).
- **Waterpipe smoking results in measureable acute adverse physiological and health effects.** Studies document elevated heart rate and blood pressure, other deleterious acute cardiovascular effects, impaired lung function and exercise capacity, increased lung inflammation, syncope and acute CO poisoning in waterpipe smokers⁽³³⁻³⁸⁾.
- **Waterpipe smoking is associated with multiple long-term adverse health outcomes.** Systematic reviews of existing research point to significant associations between waterpipe smoking and lung cancer, periodontal disease and low birth weight (39). More recent data suggest probable associations with oral, oesophageal, gastric and urinary bladder cancer, as well as chronic obstructive pulmonary disease, cardiovascular disease, stroke, chronic rhinitis, male infertility, gastro-oesophageal reflux and impaired mental health⁽⁴⁰⁻⁶⁷⁾.

Is waterpipe tobacco smoking addictive?

The data indicate that waterpipe smoking is addictive. Nicotine is the addictive substance in tobacco, and it is present in significant quantities in waterpipe smoke. Waterpipe users have demonstrable increases in plasma nicotine levels after waterpipe smoking, and exhibit behavioral symptoms of nicotine dependence⁽⁶⁸⁻⁷³⁾. While many of the indicators of waterpipe dependence are seen with cigarette smoking, there are strong reasons to believe that tobacco dependence in waterpipe smokers has unique features that continue to be unrecognized in models and instruments derived from the literature on cigarettes⁽²⁸⁾. In the absence of an established and validated set of waterpipe-specific measures of tobacco dependence, the addictiveness of the waterpipe may be currently underestimated.

What about second hand smoke from waterpipe tobacco smoking?

Second hand smoke from waterpipes is harmful. Multiple studies have documented the presence of significant quantities of CO, aldehydes, PAH, ultrafine particles and respirable particulate matter in second hand waterpipe smoke⁽⁷⁴⁻⁷⁹⁾. Waterpipe smoking results in higher emissions of CO, PAH and volatile aldehydes than cigarette smoking⁽⁷⁹⁾. Moreover, the direct emissions of toxicants from waterpipes smoked with a tobacco-free preparation were equal to or greater than those from waterpipes smoked with tobacco-based preparations. Thus, smoke from tobacco-free waterpipe products is dangerous, and except for nicotine, has the same toxicant content and biological activity as tobacco-based products⁽⁷⁷⁾.



Is waterpipe tobacco smoking covered under the WHO international Framework Convention on Tobacco Control (FCTC)?

The WHO FCTC covers all tobacco products, and Parties to the Convention are obliged to include waterpipe tobacco use in developing and enacting tobacco control policies. Presently, many tobacco control policy frameworks including the WHO FCTC's articles are based on cigarette policy evidence effectiveness, and may not address all the issues arising from the unique features of waterpipe smoking. WHO, the FCTC Secretariat, the WHO Study Group on Tobacco Product Regulation (TobReg) and Member States are collaborating to augment and solidify the evidence base for waterpipe tobacco use, to guide the development of appropriate waterpipe-specific legislation and policy interventions to address this distinct form of tobacco consumption.

What should Governments, Ministries of Health and communities do about waterpipe tobacco smoking?

With growing evidence that delineates the harmful and addictive nature of waterpipe smoking, its growing use worldwide and the rising investment and interest of the tobacco industry and commercial entities in promoting waterpipe tobacco use, **Governments, Ministries of Health and communities must take strong and effective actions to protect the public from waterpipe smoking and second hand waterpipe smoke**⁽⁶⁰⁾.

Specific actions could include:

WHO FCTC article	Specific policy recommendations for waterpipes
Article 5	General obligations. Proactively incorporate all forms of tobacco use in tobacco control policies and ensure that waterpipe specific stipulations ³ are included in legislation in countries with a high or increasing prevalence.
Article 5.3	Protection from vested commercial interests. Prohibit the tobacco industry, its allies and front groups to act as a legitimate public health partner or stakeholder while it continues to profit from tobacco and its products or to represent its interests, regardless of the role it plays in the production, distribution and sale of waterpipes and waterpipe products.
Article 6	Price and tax measures to reduce the demand for tobacco. Use both tax and price measures to increase prices of waterpipe tobacco and waterpipe products.
Article 8	Protection from exposure to tobacco smoke. Expand clean indoor air policies to incorporate the prevention of second hand smoke exposure from waterpipes, including at waterpipe cafés or lounges.

Articles 9 and 10 **Regulation of the contents of tobacco products and tobacco product disclosures.** Require the testing and reporting of tobacco contents and emissions from waterpipe.

Article 11	Health claims. Prohibit any misleading health claims on waterpipe tobacco packaging and all waterpipe parts and accessories. a b Health warnings. Mandate health warning labels on waterpipe tobacco, product packaging and waterpipes themselves in line with Article 11 of the WHO FCTC.
Article 12	Education, awareness and training. Raise awareness regarding the health dangers of waterpipe tobacco smoking, and include waterpipe-specific education and training in wider tobacco education and public awareness programmes.
Article 13	Advertising, promotion and sponsorship. Ban all advertising, promotion and sponsorship of waterpipes. Parties not in a position to undertake a comprehensive ban should strongly restrict such advertising, promotion and sponsorship.
Article 14	Demand reduction measures concerning tobacco dependence and cessation. Address waterpipe tobacco smoking in cessation and treatment programmes for tobacco dependence.
Article 15	Illicit trade in tobacco products. Include waterpipe tobacco in legislation and measures prohibiting illicit trade in tobacco.
Article 16	Sales to and by minors. Prohibit sales of all tobacco, including waterpipe tobacco, to minors. Waterpipe venues should not be an exception to this legislation.
Additionally	Product design and information. Regulate waterpipes and waterpipe products consistent with the WHO FCTC Guidelines. Ban waterpipe tobacco with alcohol and sweet-like flavours that may appeal to children and young people. Require manufacturers and importers to disclose to government authorities information about the contents and emissions of waterpipe tobacco smoking. Require registration of manufacturers and importers with government authorities. Surveillance and monitoring. Strengthen the evidence base and address the data gaps in relation to waterpipe tobacco use and effective interventions to prevent its uptake and to help current waterpipe smokers to quit.

³ Waterpipes with or without tobacco in the "head".



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