



## HOOKAH IS NOT HARMLESS

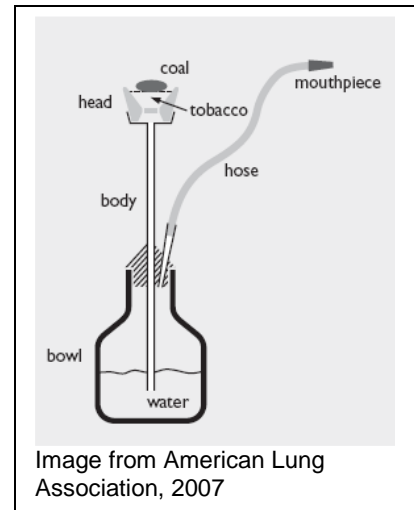
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Hookah use is especially popular among youth and college students. Despite the different way of smoking, hookahs (also called waterpipe, shisha, narghile, argileh, hubble-bubble, goza) still use tobacco, expose users to nicotine, and increase health risks. The social aspect of hookah use attracts younger users, and the wide variety of kid-friendly hookah tobacco flavors makes it even more appealing.

Hookah has been used for centuries in African and Asian countries, but in recognition of the health hazards posed by hookah, at least ten countries in African and Asia have banned the sale of hookah.<sup>1</sup> In the U.S., use has rapidly increased in the U.S. in recent decades, coinciding with the proliferation of flavored hookah tobacco.

### How Hookahs Work

The hookah waterpipe consists of a head, body, water bowl, and hose, although they can vary in size and shape. The smoke aerosol generation process in hookahs is different than in cigarettes.<sup>2</sup> While the dried tobacco itself burns in a cigarette, a hookah, or waterpipe, uses an external heat source, charcoal, to devolatalize the tobacco at lower temperatures than a cigarette. Thus, the tobacco itself does not burn in hookahs, but is heated. The smoke carrying charcoal combustion particles passes through the tobacco to the water, which bubbles into a vapor that users inhale.



### Flavored Hookah Attracts Youth Users

Like other tobacco products, there is strong evidence that flavored hookah appeals to youth and may play an important role in initiation of hookah use. Traditionally, raw tobacco was used in the hookah waterpipe, but in the 1990s, flavored hookah tobacco was introduced, leading to increased popularity among young people around the world.<sup>3</sup> According to the 2022 National Youth Tobacco Survey (NYTS), 290,000 middle and high school students are current hookah users.<sup>4</sup>

Hookah is available in a wide variety of kid-friendly flavors. For example, Al Fakher, one of the biggest hookah companies in the U.S., sells kid-friendly flavors like bubble gum, cola, blueberry, strawberry cream and watermelon. These flavors are highly appealing to youth. They are also sold through many online retailers that lack adequate age verification.<sup>5</sup> The government-sponsored 2013-2014 Population Assessment on Tobacco and Health (PATH) survey found that 88.7% of 12-17 year-olds who had ever smoked hookah used flavored hookah the first time they tried the product and more than three-quarters (78.9%) of youth hookah users reported that they use hookah “because they come in flavors I like.”<sup>6</sup> The 2021 NYTS found that 46.6% of current youth hookah users reported using a flavored product in the last month.<sup>7</sup>

### Social Appeal of Hookah Use Among Youth and Young Adults

It is common practice for hookah to be used in social settings. In fact, according to the PATH survey, 79.6% of current youth hookah users say that they use hookah because they like socializing while using the product.<sup>8</sup> Hookah bars and cafes have grown in popularity, particularly in urban areas and around college campuses.<sup>9</sup> These establishments explicitly market a social, fun and relaxing environment to young adults.<sup>10</sup> They often have additional appeal, offering musical performances, food, and alcohol. A 2009 review of 144 websites advertising hookah establishments found that 79% served food and 41% served alcohol.<sup>11</sup> These establishments are often exempt from state and local smoke-free laws.

## Hookah Users Underestimate the Health Risks of Hookah Use

Many hookah users are unaware of its health harms. This is due in part to misleading claims on hookah packaging. Researchers who examined over 100 popular hookah products found that over half contained misleading claims, such as that the product was “tar free,” and that only 38% of analyzed products disclosed that the product contained nicotine, despite the fact that all hookah tobacco contains nicotine.<sup>12</sup> In addition, the social patterns of hookah use, which differs from that for other tobacco products, means that many hookah users do not participate in the preparation of the tobacco and therefore never come in contact with the package of tobacco mixture. This leads to a high degree of unfamiliarity among users about the contents of the mixture in the waterpipe bowl. In fact, studies show that youth and young adults consistently underestimate the health risks of hookah:

- The government-sponsored 2013-2014 Population Assessment on Tobacco and Health (PATH) study found that 60.6% of current hookah users aged 12-17 use hookah because they think it might be less harmful than cigarettes.<sup>13</sup> The same survey found that almost a quarter of 12-17 year old hookah users use hookah because they think it helps in quitting smoking.
- The 2011 National Young Adult Health Survey, found that about a quarter of young adults aged 18-34 believe that hookah use is “less risky” than cigarettes, with higher agreement among younger adults and current hookah users.<sup>14</sup>
- Many smaller studies of college students have consistently found that young adults view hookah use as less harmful, less addictive, and more socially acceptable than cigarette smoking.<sup>15</sup>
- A 2011 study of high school students in San Diego found that nearly half of students (46.3%) thought that hookah use was safer or less addictive than cigarettes, and among those students, one-third thought this because they presumed hookah to have no or less nicotine and one-quarter thought that it had fewer chemicals and was cleaner.<sup>16</sup>
- Not only is the perception that hookah is less harmful more common among current hookah users, but a longitudinal study of 18-24 year-olds found that this belief is a significant predictor of future hookah use.<sup>17</sup>

## Hookah Use is Linked to Serious Health Harms

According to the CDC, using a hookah to smoke tobacco poses serious health risks to smokers and others exposed to the smoke from the hookah.<sup>18</sup> Because the flavors and the smoking technique create a more soothing (“smooth”) experience, hookah smokers can inhale more deeply and spend more time in a “hookah session,” which typically lasts for 40 to 45 minutes (three to four times longer than it takes to smoke a cigarette). While a typical cigarette requires about 20 puffs, an hour-long hookah session may involve 100 to 200 puffs<sup>19</sup>, potentially exposing the user to more smoke over a greater period of time than what occurs when smoking a regular cigarette.<sup>20</sup>

Although the smoke passes through water, this does *not* eliminate the hazardous, addictive chemicals released from the tobacco. At least 82 toxicants and carcinogens have been identified in hookah smoke, including tobacco-specific nitrosamines (TSNAs), polycyclic aromatic hydrocarbons (PAHs), and heavy metals.<sup>21</sup> Further, the combustion of charcoal used to heat hookah tobacco may pose additional health risks, since the combustion process produces dangerous substances such as carbon monoxide, metals, and other chemicals.<sup>22</sup>

Hookah smoking also delivers nicotine, the same highly addictive drug found in other tobacco products. Studies have found that in a typical hookah smoking session, smokers attain the up to 1.7 times the nicotine exposure and up to nine times the carbon monoxide exposure as a single cigarette.<sup>23</sup> A review of the evidence indicates that hookah smoking is associated with nicotine dependence, including experiences of withdrawal and difficulty quitting, at least among some users.<sup>24</sup> Nicotine is an addictive drug that can have lasting damaging effects on adolescent brain development and has been linked to a

variety of adverse health outcomes for the developing fetus.<sup>25</sup> Nicotine also impacts the cardiovascular system.<sup>26</sup>

Research indicates that hookah smoking is linked to many of the same adverse health effects as cigarette smoking, such as lung, bladder and oral cancers and heart disease.<sup>27</sup> Other documented long-term effects include impaired pulmonary function, chronic obstructive pulmonary disease, esophageal cancer and gastric cancer.<sup>28</sup> Studies have shown that hookah smoke contains many of the same harmful components found in cigarette smoke, such as nicotine, tar and heavy metals.<sup>29</sup> As a result of exposure to the dangerous chemicals in hookah smoke, research shows that even short-term hookah use is associated with acute health effects, including increased heart rate, blood pressure, reduced pulmonary function and carbon monoxide intoxication.<sup>30</sup>

Hookah use may also put users at additional risks during the COVID-19 pandemic. According to the World Health Organization, "Since waterpipe smoking is typically an activity that takes place within groups in public settings and waterpipe use increases the risk of transmission of diseases, it could also encourage the transmission of COVID-19 in social gatherings."<sup>31</sup>

### **Youth Hookah Use Increases Risk of Trying Other Tobacco Products**

In addition to the health harms of using hookah, by exposing youth and young adults to addictive nicotine and the behavior of smoking, hookah use may play a role in cigarette initiation. Recent studies have associated hookah use with subsequent cigarette initiation, increased intensity of cigarette smoking, and reduced cessation success:

- A longitudinal study of over 1,000 15-23 year-olds who were never cigarette smokers at baseline found that ever use of hookah at baseline was associated with increased odds of cigarette initiation, current cigarette smoking, and higher intensity of cigarette smoking at two-year follow-up.<sup>32</sup>
- A longitudinal study of 256 college students who were current smokers found that dual cigarette and hookah use at baseline was associated with increased frequency and intensity of cigarette smoking at 6 month follow up.<sup>33</sup>
- According to the 2012-2013 Adult Tobacco Survey (ATS), 15.7% of young adults aged 18-24 who were not established cigarette smokers were hookah users, and were two times as susceptible to cigarette smoking as those who were not current hookah users.<sup>34</sup>
- Several studies have found a significant prevalence of dual use of hookah and cigarettes.<sup>35</sup>
- A study of over 1,000 college students enrolled in a smoking cessation trial found that those who were dual cigarette smokers and hookah users at baseline had significantly lower odds of successfully quitting all tobacco use at 6 months.<sup>36</sup>

### **Policy Solutions to Reduce Hookah Use Among Youth and Young Adults**

In states or localities with smoke-free laws, hookah bars often receive an exemption. Some laws even allow minors in these establishments. A 2015 study found exemptions for hookah establishments in the smoke-free laws for 24 states, and loopholes that exempt establishments that receive a set percentage of sales from tobacco products in another 14 states.<sup>37</sup> A review of smoke-free laws in the 100 largest US cities found that 69 of the 73 cities that prohibit cigarette smoking in bars had exemptions for hookah use.<sup>38</sup> Removing these loopholes can reduce exposure to secondhand smoke and help to denormalize hookah use.

States and localities can also enact restrictions to limit the appeal of hookah to youth and young adults. States and localities have clear authority to restrict the sale of flavored tobacco products (or any tobacco

product) to reduce tobacco use and its harms to its citizens. Over 300 localities have already passed restrictions on sales of flavored tobacco product, and many of these include hookah tobacco.

The tobacco used for hookah is taxed like pipe tobacco, at a rate lower than cigarettes in many states and at the federal level. High prices on tobacco products make them less affordable to youth and are an effective way to reduce youth tobacco use. Having hookah and other smoking tobacco available at lower prices is a public health concern as it provides cigarette smokers with an alternative lower-priced tobacco product that pose many serious health risks. It also incentivizes smokers to switch products rather than quit in response to high prices.

### **Campaign for Tobacco-Free Kids, November 21, 2022 / Laura Bach**

<sup>1</sup> An Overview of Global Regulatory Practices in Controlling Waterpipe Tobacco Use Prepared by the WHO FCTC Secretariat's Knowledge Hub on Waterpipe Tobacco Smoking under the grant from the Convention Secretariat, WHO FCTC, July 2018.

<https://www.who.int/fctc/cop/sessions/cop8/WHO-FCTC-Regulatory-Practices-on-water-pipes.pdf>.

<sup>2</sup> Shihadel A, Saleh R. Polycyclic aromatic hydrocarbons, carbon monoxide, "tar", and nicotine in the mainstream smoke aerosol of the narghile water pipe. *Food and Chemical Toxicology* 2005; 43: 655-61.

<sup>3</sup> World Health Organization, *Fact Sheet: Waterpipe Tobacco Smoking & Health*, 2015,

[https://apps.who.int/iris/bitstream/handle/10665/179523/WHO\\_NMH\\_PND\\_15.4\\_eng.pdf;jsessionid=CD4B4EF29B1513226BF554DF1700F5F7?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/179523/WHO_NMH_PND_15.4_eng.pdf;jsessionid=CD4B4EF29B1513226BF554DF1700F5F7?sequence=1).

<sup>4</sup> Park-Lee E, et al. "Tobacco Product Use Among Middle and High School Students — United States, 2022." *MMWR* 71(45):1429–1435, November 11, 2022, <https://www.cdc.gov/mmwr/volumes/71/wr/pdfs/mm7145a1-H.pdf>.

<sup>5</sup> See e.g., [www.hookah-shisha.com](http://www.hookah-shisha.com), [www.thehookah.com](http://www.thehookah.com), [www.hookahset.com](http://www.hookahset.com).

<sup>6</sup> Ambrose, BK, et al., "Flavored Tobacco Product Use Among US Youth Aged 12-17 Years, 2013-2014," *Journal of the American Medical Association*, published online October 26, 2015.

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<sup>9</sup> American Lung Association, *An Emerging Deadly Trend: Waterpipe Tobacco Use*, February 2007,

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<sup>10</sup> See e.g., Primack, BA, et al., "U.S. hookah tobacco smoking establishments advertised on the internet," *American Journal of Preventive Medicine*, 42(2): 150-156, 2012. Griffiths, MA, et al., "Hubble Bubble Trouble: The Need for Education About and Regulation of Hookah Smoking," *Journal of Public Policy & Marketing*, 30(1): 119-132, 2011. Sterling, KL, et al., "Promotion of waterpipe tobacco use, its variants and accessories in young adult newspapers: a content analysis of message portrayal," *Health Education Research*, 30(1): 152-161, 2015.

<sup>11</sup> Primack, BA, et al., "U.S. hookah tobacco smoking establishments advertised on the internet," *American Journal of Preventive Medicine*, 42(2): 150-156, 2012.

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<sup>15</sup> See e.g., Primack, AB, et al., "Prevalence of and Associations with Waterpipe Tobacco Smoking among U.S. University Students," *Annals of Behavioral Medicine*, 36(1): 81-86, 2008. Grekin, ER and Ayna, D., "Waterpipe Smoking Among College Students: A Review of the Literature," *Journal of American College Health*, 60(3): 244-249, 2012. Smith-Simone, SY, et al., "Differing psychosocial risk profiles of college freshman waterpipe, cigar and cigarette smokers," *Addictive Behaviors*, 33(12): 1619-1624, 2008. Smith, SY, et al., "Harm perception of nicotine products in college freshman," *Nicotine & Tobacco Research*, 9: 977-982, 2007. Eissenberg, T, et al., "Waterpipe tobacco smoking on a U.S. college campus: prevalence and correlates," *Journal of Adolescent Health*, 42: 526-529, 2008.

<sup>16</sup> Smith, JR, et al., "Determinants of Hookah Use among High School Students," *Nicotine & Tobacco Research*, 13(7): 565-572, 2011.

<sup>17</sup> Villanti, AC, et al., "Correlates of Hookah Use and Predictors of Hookah Trial in U.S. Young Adults," *American Journal of Preventive Medicine*, 48(6): 742-746, 2015.

<sup>18</sup> Centers for Disease Control and Prevention. "Hookahs." Available at [http://www.cdc.gov/tobacco/data\\_statistics/fact\\_sheets/tobacco\\_industry/hookahs/](http://www.cdc.gov/tobacco/data_statistics/fact_sheets/tobacco_industry/hookahs/). Accessed March 4, 2016

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<sup>20</sup> World Health Organization. WHO Advisory Note: "WaterpipeTobacco Smoking: Health Effects, Research Needs and Recommended Actions by Regulators," WHO 2005; HHS, *Prevention Tobacco Use Among Youth and Young Adults, A Report of the Surgeon General*, 2012, <http://www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/index.html>; American Lung Association, *An Emerging Deadly Trend: Waterpipe Tobacco Use*, February 2007, [http://www.lungusa2.org/embargo/slati/Trendalert\\_Waterpipes.pdf](http://www.lungusa2.org/embargo/slati/Trendalert_Waterpipes.pdf). American

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