

## A Mini-Review on Sheesha Smoking: A Potent Cancer Inducer

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**Abstract:** Sheesha smoking is considered as less harmful as compare to cigarette smoking due to the presence of water in the pipe, which clear risky substances present in the smoke. But it is just consideration, in fact sheesha smoke contain more carbon monoxide than cigarette smoke. On one hand, it can cause a variety of cancers and on the other hand, sharing of water pipe among sheesha smokers lead to development of various infectious diseases. This mini review briefly discusses various toxicological effects of sheesha smoking on smokers' health.

**Key words:** Cigarette • Sheesha • Toxicological

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### INTRODUCTION

Water pipe smoking (WPS) also termed as, hookah in English and nargile or sheesha in Arabic is used all around the world. WPS is the most conventional Arab technique of smoking tobacco. Water pipes present delightful way of smoking tobacco along with relaxation and pleasure. The tobacco leaf, molasses as well as flavoring used to produce jurak, permit for a verity of taste preference. A lot of people believe that sheesha smoking is less harmful as compare with cigarette smoking. They believed that the water clean out the risky substances. Sheesha smoke contain more carbon monoxide as compare to cigarette smoke [1]. It was found that sheesha smokes have higher blood carboxyhemoglobin concentration than cigarette smokers [2]. According to the World Health Organization sheesha is lighter than other forms of tobacco smoking, but charcoal that keeps the jurak burning, generates a high level of carbon monoxide [3]. The World Health Organization reports that smoking occurrence amongst young populaces in Arab countries is greatly varying such as 53% in Lebanon, 43% in Yemen, 31% in Syria, 25% in Saudi Arabia, 23% in Iraq, 18% in Kuwait and Jordan, 14% in Iran and 7% in Oman [4]. The original water-pipe came from India, however it was rather prehistoric as it was made out of coconut shell. Its reputation first extended to Iran and then the Arab world as well as Turkey. It consists of various sections

including the pipe, mouthpiece, head, body and hose (Fig. 1). The tobacco is put in the funnel pipe and a bit of charcoal is put on it. The mouthpiece set in the mouth arranged toward the end of the hose, the air in the space at the top of the bottle is breathed in and henceforth the smoke goes through the water before arriving at to the mouthpiece. In the wake of dissolving solvent mixes nicotine and tar washed down by the water, the smoke gathers in the unfilled space at the top of the bottle. Since the smoke arriving at the aviation routes is separated and humidified, a fast and short breathing pattern is utilized [5-6].

### Comparison of Sheesha Smoke with Cigarette Smoke:

The water-pipe tobaccos have about 2% to 4% nicotine and cigarettes contain 1% to 3% [6-7]. Carbon monoxide concentrations for water-pipe smoke are 0.34% to 1.40% and for cigarette smoke is about 0.41% [8]. Another study also found high carbon monoxide levels in a group of 18 healthy Jordanian water-pipe smokers [9]. The concentrations of carboxyhemoglobin among water-pipe smokers are 10.1% and cigarette smokers have 6.5% [10].

An investigation of nicotine and in addition cotinine in water-channel smokers discovered high estimations of these materials in the wake of smoking [11]. Another report demonstrate that urinary cotinine focuses were comparable for water-funnel smokers (average of 2 funnels every day) and in addition for cigarette smokers

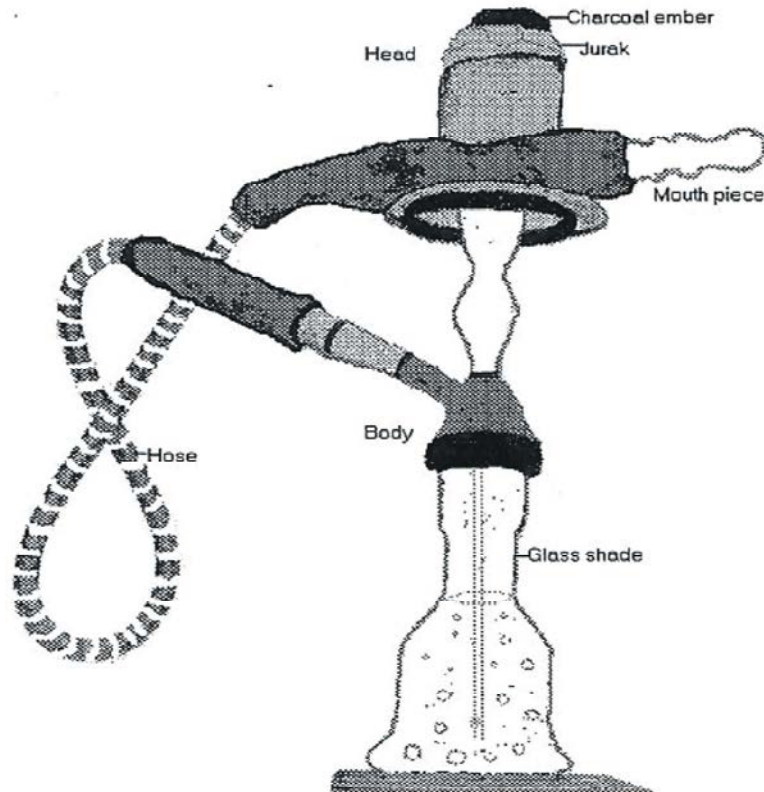


Fig. 1: A water-pipe illustration [5]

(average of 30 cigarettes every day) [12]. An investigation of standard smoke aerosol was discovered that nargile smoke have significant amount of nicotine, tar and additionally heavy metals [13].

**Reasons for Sheesha Smoking:** Different reasons are responsible for Sheesha smoking. Some of these are as follows. (1) Worldwide Tourism along with Migration Flows. (2) A New Hassle-Free Lighting System. (3) Relative Acceptance by Non-Smokers. (4) Unexpected Backlash Effect of Anti-Tobacco Campaigns. (5) Filtration of Some Noxious Substances. (6) A Light Dependence. (7) The Influence of Television. (8) The increase of individuality in present culture. (9) Conviviality. (10) A Powerful Symbolism. (11) A slanting Religious, Social Inter-Generational and Sexual Practice. (12) Flavours (“tobamel” (muassel), a flavoured tobacco (or no-tobacco)-honey/molasses based mixture. (13) The Cultural Status of Honey. (14) A Highly Sensory Experience. (15) Rebellion Values [14].

**Sheesha Smoke Impacts on Health:** A number of studies have recognized the unfavorable health consequences of sheesha smoking which is given below.

**Infectious Diseases:** WPS is responsible for spreading infectious diseases due to the sharing of same mouthpiece and pipe. An investigation of Egyptian patients with *Helicobacter pylori*, water-pipe smokers who smoked in gatherings have expanded rates of infection disease [15]. Pulmonary aspergillosis has been reported in a leukemia patient as a result of smoking contaminated tobacco and marijuana in a water pipe [16]. Sharing a marijuana water pipe has been linked with the transmission of tuberculosis [17].

**Oral Effects:** Sheesha smoking has several harmful impacts on mouth include discoloration of teeth, dental reinstatement as well as condensed capability of smell along with taste. It is also remarkable threat for periodontal bone loss and dry sockets [18-19].

**Effects on Reproduction:** Investigations of 100 Egyptian fruitless ladies demonstrate that Water Pipe smoking of the spouse was linked with sterility of the couple [20] and little conception weight in mothers who were addicted to sheesha smoke [21].

**Sheesha Smoking and Pulmonary Function:** The effect of Sheesha smoke was observed on pulmonary function in both male (441) and female (154) smokers. The consequences were more pronounced on the aged female smokers as compare to young and middle ones. On account of increasing the risks for development of obstructive airway disease, Sheesha smoke may produce same injurious effects on ventilator capacity function [22]. Urinary cotinine (U-cotinine), urinary cadmium (U-Cd) and Blood cadmium (B-Cd) were broadly higher amongst sheesha smokers [23].

**Cardiovascular Effects:** It was accounted for that following forty five minutes of Sheesha utilization; heart rates were found extensively augmented [24]. A few surveys revealed mean improvement in systolic and additionally diastolic pulse and Sheesha smokers' heart rate is seen after Sheesha smoking contrasting cigarettes smoking, slight is thought regarding wellbeing impacts of Sheesha utilization. One intense effect is brokenness in autonomic regulations of the cardiovascular cycle, as diminishment in heart rate inconsistency. Lessened variability of heart rate is connected with inward breath presentation actuated oxidative stretch and increment in heart rate and pulse [25-28].

**Antioxidant and Vitamin C:** It was observed that whole antioxidant capability as well as vitamin C level be lesser amongst the smokers as compare to nonsmokers [26].

**Effect on Pregnancy Outcome:** It was estimated that smoking single or additional Sheesha for every day throughout pregnancy is linked with 100gm drop of weight. The threat of deliver low down birth babies almost triples amongst persons who get hold of the practice of Sheesha smoking in 1st trimester [27]. It was also accounting that mother who smoke Sheesha have low birth weight infant compared with nonsmoker [28]. Sheesha smoking also linked with lower APGAR score along with improved pulmonary problems on birth [29].

**Carcinogenic Effect:** The main smoke constituent is nicotine along with Carbon Monoxide [30]. CEA (Carcinoembryonic antigen) is recognized as an indicator for malignant transformation and chronic inflammation and its concentration is elevated in the smokers which may cause a wide range of cancers [31]. An investigation on 25 men in India with bronchogenic carcinoma revealed that 22 were nargile smokers [32].

Research on 214 Chinese tin minors who used water pipes was found a double threat for lung cancer contrast with nonsmokers [33]. A studies of 251 cases of patients with lung cancer along with 500 same aged controls showed that 194 (178 current) ever-smokers among the patients of lung cancer while 223 (134 current) amongst the control group. Smokers have a 4.2 times higher risk of lung cancer as compare to nonsmokers. In a study having 120 hookah smokers and 100 control group members showed that there were nearly 6 times more risk to smokers as compare to nonsmoker for lung cancer [34].

WPS was linked with gastric as well as esophageal carcinoma in a pilot survey conducted at Yemen [35]. Similarly two cases of squamous cell carcinoma along with one lower lip's keratoacanthoma have been reported in Egypt amongst nargile smokers [36]. It was reported that there is considerable linking of esophageal carcinoma with Sheesha smoking [37]. The link of Sheesha smoking with esophageal carcinoma was also stated in a study carried out at Iran, India and China [38-39].

Pancreatic melanoma is extensively linked with tobacco smoking [40]. Pancreatic cancer occurs due to damaging (mutations) of DNA. it was reported that Sheesha smoking is a considerable risk for pancreatic cancer [41].

It was reported that Sheesha smoking is a factor for occurring prostate cancer [42-43]. A study conducted on hundred bladder cancer cases showed that approximately 5% of the total patients were Sheesha smokers [44]. The cancer-hypothesis reviewed by Prignot et al. is fairly apparent regarding bladder cancer as that data point demonstrates an elevated risk only, not bladder cancer [45].

## CONCLUSION

In summary, the belief that sheesha smoke is less harmful is totally wrong as it is a source of various infectious and carcinogenic problems. Peoples should be made aware about the hazardous effects of sheesha smoke and should abandon such smoke on priority basis.

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