



HOOKAH SMOKING: A RISK FACTOR FOR PERIODONTAL DISEASE

Periodontology

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ABSTRACT

Similar to cigarettes, hookah smoking delivers the addictive drug nicotine and it is as toxic as cigarette smoking. While many hookah smokers may consider this practice less harmful than smoking cigarettes, hookah smoking carries many of the same health risks as cigarettes. This article identifies the negative impact of hookah smoking on overall as well as periodontal health and provides further evidence that this is an avoidable risk factor for periodontal disease. The purpose of this review article is to inform healthcare professionals about hookah smoking, and to introduce perspectives for dental patient management and future research.

KEYWORDS

Hookah, Smoking, Periodontal disease

INTRODUCTION

Periodontal disease is an infectious disease characterized by inflammation and subsequent destruction of the supporting structures of the teeth. Tobacco smoking is an addictive habit which has long been considered to be a risk factor for many diseases and its adverse effects on general health have been well documented. The increased risk of neoplasms of the lung, larynx, oral cavity and oesophagus, chronic obstructive lung diseases, cardiovascular disease, peptic ulcers, stillbirth and miscarriage have all been clearly shown to be closely related to tobacco and smoking. Detrimental effects of smoking on periodontal tissues, clinical consequences, and possible biological mechanisms that render smokers more susceptible to periodontitis have been reviewed.(1)

Tobacco smoking has been identified as a risk factor for poor periodontal health in several studies over the years; been thought to contribute to certain aspects of periodontal disease and also has been the subject of many studies. The 1996 World Workshop in Periodontics, reviewed a number of studies and confirmed that "smoking entailed an overall increased risk for severe periodontal disease and estimated overall odds ratio of 2.82".(2) It has been reported that smokers have more severe periodontal diseases than former smokers or non-smokers.

Hookahs are water pipes that are used to smoke specially made tobacco that is usually flavoured. They are called by a number of different names, including waterpipe, narghile, argileh, shisha, hubble-bubble, and goza. Hookah smoking is typically practiced in groups, with the same mouthpiece passed from person to person. In recent years, there has been an increase in hookah use around the world, most notably among youth and college students. Current evidence suggests that hookah smoke contains many toxicants and is associated with adverse health effects.(3)

HOOKAH

The hookah, or water pipe, usually consists of four parts: base, bowl or "chillum", "chilam", pipe, and hose. They come in varying sizes and colors and can have either a single or multiple hose hook-up. (Figure 1)

- **Base:** This is the smoke chamber, which is partially filled with water. Soft drink, fruit juice, alcohol is also used to fill the base. Some hookah cafes use fruits like watermelon etc. as a base. (Figure 2)
- **Bowl or "chillum", "chilam":** The bowl holds both the tobacco and the heating source, usually charcoal. The bowl is made up of ceramic material. Watermelon etc. is also used by cutting it into the shape of the bowl. (Figure 2)
- **Pipe:** An internal pipe dips into the water, connecting the bowl and the base.
- **Hose or mouthpiece:** A tube connects to the pipe and the air inside the base, which allows the user to inhale the smoke.



Figure 1



Figure 2

The tobacco that is placed inside the bowl or chilam is very moist, it does not burn in a self-sustaining manner. The tobacco molasses are often flavoured and sweetened (commonly available flavours are apple, kiwi, orange). Charcoal is placed atop the tobacco-filled bowl often separated by an aluminium foil. Tiny holes are made on the foil with the help of safety pin or similar object. Some of the brands being sold in India have claimed that the flavoured molasses consisted of

only 0.5% nicotine and 0% tar.

To smoke a hookah, the user inhales through the mouthpiece that is connected to the tubing. This creates a pressure difference that forces the air past the charcoal or heating source and heats up the shisha, which creates smoke. The smoke is then cooled as it passes through the water chamber. Thus, the hookah operates with indirect heat and water filtration. During a hookah session, smokers typically replenish & adjust the charcoal periodically. The combination of the water-cooled and flavoured smoke with the incorrect perception of decreased toxicant content relative to cigarette smoke has contributed to a dramatic increase in prevalence of waterpipe tobacco smoking.(4,5)

The biggest myth surrounding the hookah is that it is safer than smoking cigarettes. It is true that filtering the tobacco through water removes some of the dangerous toxins. However, according to World Health Organization Advisory, even after passing through water, the tobacco smoke still contains high levels of carcinogens, including carbon monoxide. The smoke itself transports considerable levels of nicotine — nearly three times that of smoking cigarettes, increasing the risk of addiction. Typically, a hookah session lasts 30 minutes to an hour. The smoke which is inhaled by the user is a combination of charcoal smoke and tobacco smoke exposing users to many of the same disease-causing toxicants and carcinogens such as nicotine, carbon monoxide (CO), polycyclic aromatic hydrocarbons, volatile aldehydes, and tobacco-specific nitrosamines generated by cigarettes.(6,7,8,9) A typical hookah session exposes the user to 100 to 200 times the smoke volume inhaled by a single cigarette. During a typical hookah session the volume of the smoke inhaled is about 90,000 milliliters, compared with 500 to 600 milliliters inhaled when smoking a cigarette. Therefore, the amount of toxicants generated during a single waterpipe smoking session is much more than the smoke generated from a single cigarette.(10,11) For example, during a waterpipe session 242–2350 mg of tar and 5.7–367 mg of CO is produced compared to 1–27 mg of tar and 14–23 mg of CO from a single cigarette.(12)

HEALTH EFFECTS OF HOOKAH SMOKING

Many hookah smokers believe that smoking a hookah carries less risk of tobacco-related disease than cigarette smoking. However, hookah smoke contains many of the same harmful toxins as cigarette smoke and has been associated with periodontal disease, lung cancer, respiratory illness, low birth weight etc.

Epidemiological studies have demonstrated that shisha (tobacco) use is a significant risk factor for the development of periodontal diseases.(13) Shisha accumulate markedly more dental calculus than non shisha – smokers, and the quantity of calculus is correlated with the frequency of shisha smoking.(14) Hookah smoking is also associated with an increased risk of periodontal attachment loss and formation of periodontal pockets, as well as alveolar bone loss. The adverse effects of smoking hookah on the periodontium correlates well with both the quantity of daily consumption and the duration.

Shisha smoking is linked with many serious illnesses, such as cancer, cardiopulmonary diseases, low birth weight, as well as with many health problems.(3,15) While the water does absorb some of the nicotine, hookah smokers can be exposed to a sufficient dose of nicotine to cause addiction.(5,16) It is likely that the reduced concentration of nicotine in the hookah smoke may result in smokers inhaling higher amounts of smoke and thus exposing themselves to higher levels of cancer-causing chemicals and hazardous gases such as carbon monoxide.(17) The charcoal that is used to burn the tobacco is likely to increase the health risks, because when it is combusted it produces high levels of carbon monoxide, metals and cancer causing chemicals.(18) Sharing a mouthpiece poses a serious risk of transmission of communicable diseases, including tuberculosis and hepatitis.(17)

PUBLIC HEALTH INITIATIVES BY WHO

The WHO's study group on Tobacco Product Regulation (TobReg) urges consideration of the following public health initiatives to reduce hookah smoking and associated disease:

1. Hookahs and flavoured tobacco should include strong health warnings.
2. Hookahs and flavoured tobacco should be subjected to the same regulations as cigarettes and other tobacco products.
3. Misleading labeling, such as "contains 0 MG tar," which may

imply safety, should be prohibited.

4. Claims of harm reduction and safety should be prohibited.
5. Waterpipes should be included in comprehensive tobacco control efforts, including prevention strategies and cessation interventions.
6. Education of health professionals, regulators, and the public at large is urgently needed about the risks of hookah smoking, including high potential levels of second-hand exposure among children, pregnant women, and others.
7. Hookah should be prohibited in places consistent with bans on cigarette and other forms of tobacco smoking.

CONCLUSIONS

No tobacco is risk-free; therefore, hookah smokers are still in danger of addiction, periodontal disease, neoplasms of the lung, larynx, oral cavity and oesophagus, chronic obstructive lung diseases, cardiovascular disease and other systemic complications usually associated with tobacco use.

Hookah cafes play an important role in promoting hookah smoking. Many states in India, namely, Maharashtra, Gujarat and Punjab have banned hookah cafes, but hookah and its tobacco is easily available everywhere, making it easy for youngsters to smoke hookah at home or similar places. Even e-commerce sites are selling them online. The use of hookah and all tobacco products should be banned and law enforcing authorities should take strict action against people violating such ban. Public awareness programs especially at colleges should be undertaken to educate the youngsters about the hazards of hookah smoking.

This form of tobacco inhaling is proving to be more harmful than cigarette smoking. Unfortunately, it is shrouded by myths of safety, but is a potentially dangerous activity.

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