

Waterpipe smoking: Are we facing a new global epidemic?

Mohamed Farouk Allam, Khaled Mahmoud Abd Elaziz

ABSTRACT

Our review aimed to compare prevalence and motivations of waterpipe smoking in different countries and related hazards. Published studies about waterpipe smoking in occidental countries and the Eastern Mediterranean region, and its hazards were reviewed. The global epidemic of waterpipe or shisha smoking is on the rise. Studies reported alarming levels of waterpipe smoking among adolescents which ranged from 6–34% in the Eastern Mediterranean region and 5–17% among American adolescents. The high prevalence of this epidemic among youth is attributed to the misconceptions about its safety. The principal factors that increase this habit are its social acceptance, its novelty, its availability in numerous appealing flavors, and its relatively low cost. In Western countries, the use of quick lighting charcoal disks impregnated in gasoil rich in polycyclic aromatic hydrocarbons and benzene could add more hazards to waterpipe smoking. Strict regulations to control waterpipe tobacco selling are urgently needed, together with anti-smoking campaigns specifically launched against

waterpipe smoking to raise awareness about its hazards.

Keywords: Charcoal, Shisha, Smoking, Waterpipe

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INTRODUCTION

Waterpipes have been used to smoke tobacco and other substances by the indigenous peoples of Africa and Asia for at least four centuries. One of the stories about its invention is that waterpipe was invented in India by a physician during the reign of Emperor Akbar (who rules from 1556 to 1605) as a supposedly less harmful method of tobacco use. The physician Hakim Abul Fath suggested that tobacco smoke should be first passed through a small container of water so that it would be rendered harmless [1]. Over the last years, the global epidemic of waterpipe or shisha smoking is on rise, and more must be learned about them so that we can understand their effects on public health, curtail their spread, and help their users quit [2]. Our review aimed to compare prevalence and motivations of waterpipe smoking in different countries and related hazards.

Mohamed Farouk Allam¹, Khaled Mahmoud Abd Elaziz²
Affiliations: ¹Department of Preventive Medicine and Public Health, Faculty of Medicine, University of Cordoba, Cordoba, Spain; ²Department of Community, Environmental and Occupational Medicine, Faculty of Medicine, Ain Shams University, Cairo, Egypt.
Corresponding Author: Mohamed Farouk Allam, Department of Preventive Medicine and Public Health, Faculty of Medicine, University of Cordoba, Avda. Menéndez Pidal, s/n Cordoba 14004, Spain; Ph: +34 957 218 278; Fax: +34 957 218 573; Email: fm2faahm@uco.es

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Prevalence of Waterpipe Smoking

Recent studies reported alarming levels of waterpipe smoking among adolescents which ranged from 6–34% in the Eastern Mediterranean region and 5–17% among American adolescents [3].

Arab countries are also experiencing the risk of spread of waterpipe smoking among females as well. A recent study done in Saudi Arabia showed the prevalence of smoking among female college students was 8.6% and the study called for health education messages in secondary schools [4]. This hazardous habit would start very early in life, as a study done on secondary students in Saudi Arabia reported that 68% of those who tried waterpipe at least once was above 11 years and 32% tried waterpipe below 11 years of age. The latter study showed that 33% of the sample tried waterpipe and 10% are current waterpipe smokers both males and females [5].

This global epidemic has even reached pregnant females. A study done in Lebanon reported that 23% of the studied women (864 females from 23 health centres) were smoking and 4% are smoking waterpipe and 1.5% are smoking both cigarettes and waterpipe. This study attributed this behaviour to gaps in knowledge and permissive attitudes [6].

The change in trend and prevalence waterpipe smoking is challenging as there were scanty surveys done about that kind of tobacco smoke before 1990s. Yet recent review indicated that the start of the epidemic of waterpipe smoking today goes back to this period [3].

Motivations for Waterpipe Smoking

Martinasek et al. (2010) attributed the high prevalence of this epidemic among youth owing to the misconceptions about its safety. The principal factors that increase this habit are its social acceptance, its novelty, its availability in numerous appealing flavours, and its relatively low cost [7].

Recent systematic review showed that the main motives for waterpipe tobacco smoking in Western societies were socializing, relaxation, pleasure and entertainment. Peer pressure, fashion, and curiosity were additional motives for university and school students [8]. In contrary, the habit of smoking tobacco in waterpipes is an old practice in the Eastern Mediterranean countries like Egypt, Jordan, Syria, Lebanon and Iraq [9].

Of no doubt, the seriousness of waterpipe smoking lies in the great spread of the notion that it is safer than cigarette smoking and the widespread use even in medical students. A recent study done on medical students in Malaysia reported that 20% of the sample is smoking waterpipe. The previous study attributed that waterpipe smoking is more related with siblings and friends who smoked waterpipe [10]. This really calls for more attention about who would educate the public about the risk of waterpipe when the medical students are practicing this?

New Hazards of Waterpipe Smoking

Similarly to cigarette smoke, waterpipe smoke contains toxins that have been implicated in lung diseases (e.g., volatile aldehydes), malignant diseases (e.g., polycyclic aromatic hydrocarbons), cardiovascular diseases (e.g., carbon monoxide), and dependence (i.e., nicotine) [11]. Despite waterpipe's alarming trends, its genotoxic and carcinogenic risks, there is a failure of policies and regulations to address this emerging global public health threat [12].

Recently, Jaboc et al. (2013) published a crossover study about biomarkers of toxicant exposure with waterpipe compared with cigarette. The study included 13 volunteers from San Francisco (USA) who smoked both cigarettes and waterpipes. The results showed that waterpipe was associated with greater exposure to carbon monoxide, polycyclic aromatic hydrocarbons and benzene compared with cigarette smoking. Finally, the authors concluded that waterpipe smoking is associated with high risk of leukemia related to high levels of benzene exposure [13]. Reviewing cancer registries in GLOBOCAN 2012, we can notice that adjusted standardized mortality rates of leukemia in males are comparable in the European Region (4.8 per 100,000) to the Eastern Mediterranean Region (4.5 per 100,000). Similar rate is noticed in the Americas Region (5.0 per 100,000) [14]. Deficient registration systems could not be the explanation. Neoplasms principally attributed to smoking like lung, oro-pharyngeal and laryngeal cancers have similar prevalence in Egypt like many of the occidental countries [14]. Waterpipe tobacco brands used in the study of Jacob and collaborators (2013) were Nakhla and Al-Waha. These are the same brands usually consumed in the Eastern Mediterranean countries, like Egypt. On examining the box of Nakhla Double Apple brand, widely consumed in several European Countries, we can find a clear notice that it contains 0% tar. During the smoking process cigarette tobacco burns directly whereas waterpipe tobacco does not burn in a self-sustaining manner and requires an external heat source such as charcoal. We think that the high level of polycyclic aromatic hydrocarbon and benzene in the urine samples of waterpipe smokers in the study of Jaboc et al. (2013) could be attributed to the charcoal disks used in many occidental countries. These quick lighting charcoal disks are impregnated in gasoil rich in polycyclic aromatic hydrocarbons and benzene. Smoke from these impregnated charcoal disks is inhaled by waterpipe smokers [15]. In Eastern Mediterranean countries like Egypt natural charcoal is used and is burned slowly in special clay or metallic recipients [9, 15]. This could explain the comparable prevalence of leukemia in Egypt and occidental countries. Examining quick lighting charcoal disk tubes available in several European countries, we can notice that they lack labeling about the hazards of their use for waterpipe smoking. This calls for urgent regulations and control for the use of

these impregnated charcoal disks, which could add more hazards to waterpipe smoking in the European countries.

CONCLUSION

Alarming levels of waterpipe smoking among adolescents is found around the globe. The epidemic is reaching also medical students who should be teaching, in the future, the public about its hazards. What drives the youth to practice this hazardous habit includes relaxation, pleasure, socializing, peer pressure, fashion and curiosity. Strict regulations to control waterpipe tobacco selling are urgently needed together with anti-smoking campaigns specifically against waterpipe smoking to raise awareness about its hazards.

Author Contributions

Mohamed Farouk Allam – Substantial contributions to conception and design, Analysis and acquisition of data, Drafting the article, Revising it critically for important intellectual contents, Final approval of the version to be published

Khaled Mahmoud Abd Elaziz – Substantial contributions to conception and design, Analysis and acquisition of data, Drafting the article, Revising it critically for important intellectual contents, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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