Available online at www.sciencedirect.com

Public Health

journal homepage: www.elsevier.com/puhe

Original Research

Waterpipe tobacco smoking prevalence and illegal underage use in waterpipe-serving premises: a cross-sectional analysis among schoolchildren in Stoke-on-Trent

M. Jawad [a,*], C. McIver [b]

[a] Public Health Policy Evaluation Unit, Imperial College London, Hammersmith, W6 8RP, United Kingdom
[b] Department of Public Health, Stoke-on-Trent City Council, Stoke-on-Trent, ST4 1HH United Kingdom

ARTICLE INFO

Article history:
Received 16 August 2016
Received in revised form
14 December 2016
Accepted 18 December 2016
Available online 4 February 2017

Keywords:
Waterpipe
Shisha
Hookah
Tobacco
Smoking
Legislation
Policy

ABSTRACT

Objectives: Waterpipe tobacco smoking has received little epidemiological and policy attention in the UK despite reports of increasing prevalence alongside an anecdotally non-compliant industry. This study aimed to determine how waterpipe tobacco smoking is changing among young people in the UK, both in terms of prevalence and sociodemographic correlates of use, and to quantify the extent of illegal underage use in waterpipe-serving premises in the UK.

Study design: Repeat cross-sectional.

Methods: A secondary analysis of two cross-sectional surveys (total N = 3376), conducted in 2013 and 2015 among secondary school students aged 11–16 years in Stoke-on-Trent, measured lifetime (both surveys) and regular (at least monthly; 2015 survey only) waterpipe tobacco prevalence and location of usual use. Logistic regression models measured the association between independent variables (age, sex, ethnicity, presence of free school meals, cigarette smoking status) with lifetime and regular waterpipe tobacco use, and with illegal underage use; the latter defined as usually smoking waterpipe tobacco in a waterpipe-serving premise.

Results: Lifetime waterpipe tobacco prevalence remained similar in 2013 (13.7%, 95% confidence interval [CI] 12.0–15.4%) and 2015 (14.6%, 95% CI 12.8–16.4%), whereas regular use was measured at 2.9% (95% CI 2.1–3.8%) in 2015. Older, non-white, males who concurrently used cigarettes had higher odds of lifetime waterpipe tobacco use. Illegal underage use was reported among 27.1% of all regular users, correlates of which included increasing age and South Asian ethnicity. The presence of free school meals was not associated with lifetime or regular waterpipe tobacco prevalence, nor illegal underage use.

Conclusions: Increased monitoring of waterpipe tobacco prevalence and patterns, including the underage policy compliance of waterpipe-serving premises, is needed to help inform policy decisions to control waterpipe tobacco use.

* *Corresponding author.*

http://dx.doi.org/10.1016/j.puhe.2016.12.028

Introduction

Waterpipe tobacco smoking is a centuries-old practice where charcoal-heated tobacco smoke passes through a multi-stemmed, water-containing instrument before inhalation. It has been dubbed a 'global epidemic' given high prevalence estimates worldwide:[1–3] in areas of Eastern Europe, over 20% of secondary school students have tried waterpipe tobacco in the past 30 days; a figure reaching over 30% for secondary school students in Lebanon and the West Bank.[4] High prevalence of use is secondary to widespread social acceptability, accessibility of waterpipe-serving premises and affordability. Central to a reduced harm perception is the false belief that its smoke is safely filtered by the water at the base of the instrument;[5] a fallacy that has been since disproven after the identification of significant quantities of tar, nicotine, carbon monoxide and other carcinogens in waterpipe tobacco smoke.[6–9]

As a combustible tobacco product, waterpipe tobacco has, expectedly, been shown to be associated with an array of tobacco-related diseases, including cancers of the lung and oropharynx, cardiovascular diseases and other respiratory conditions.[10,11] Despite this, waterpipe tobacco has been given relatively little attention in the United Kingdom (UK), both epidemiologically and legislatively. The first prevalence study in the UK was published in 2008, reporting that 8.0% of students in one university were regular waterpipe tobacco users, and nearly 40% were lifetime users.[12] Since then studies have been largely confined to non-nationally representative populations, such as local surveys among school students[13,14] and university students,[15,16] with lifetime waterpipe tobacco prevalence estimates ranging from 24% to 66%. No longitudinal or repeat cross-sectional studies on waterpipe tobacco prevalence have been conducted on young people in the UK. One large repeat cross-sectional online survey of adults in Great Britain (England, Wales and Scotland only) reported that 11.6% of adults had ever smoked waterpipe tobacco and that 1.0% smoked waterpipe tobacco at least monthly, with non-significant differences in prevalence between 2012 and 2013 .[17] In this study, higher odds of use were seen among younger males of non-white ethnicities and higher socioeconomic groups.

Despite reports of high prevalence in selected population groups, the UK has been slow to respond legislatively. While waterpipe tobacco is not exempt from any of the UK's tobacco laws, which are among the strongest in Europe,[18] there have been numerous reports of difficulty in applying these laws to waterpipe-serving premises.[19,20] A classic example is enforcing indoor public smoking bans on a product which is smoked for approximately an hour in duration, in a country with a generally cold climate. Another is enforcing health warning labels on the tobacco-packed apparatuses, often cumbersome and large, which are presented to customers at such premises.[20] Illegal underage consumption is also a concern; whereas the legal age for tobacco purchases in England and Wales was increased from 16 to 18 years old in 2007, qualitative reports from law enforcers suggest illegal underage use is commonplace in waterpipe-serving premises,[20] but this has not been quantified.

In light of the lack of waterpipe prevalence data among young people in the UK, and the lack of research attention given to illegal underage use in waterpipe-serving premises, this study has two main aims. First, we aimed to determine how waterpipe tobacco prevalence is changing among young people, both in terms of prevalence and sociodemographic correlates of use. Second, we aimed to quantify the extent of illegal underage use in waterpipe-serving premises.

Methods

Design, sample, setting

This study was a secondary analysis of two cross-sectional surveys conducted in 2013 and 2015 among secondary school students aged 11–16 years in Stoke-on-Trent, one of the most deprived cities in the United Kingdom. Both surveys used similar methodological designs, in which all schools in Stoke-on-Trent were invited to participate. In the 2015 survey, fourteen secondary schools, two Pupil Referral Units and four Special Schools were invited to participate, of which six secondary schools agreed to take part. The main reasons given by schools declining to take part in the survey were lack of time and competing priorities (such as upcoming government inspections and regulatory visits). Two schools gave no response to the invitation. More details on the 2013 survey methodology can be found elsewhere.[21]

Questionnaire and measures

The Stoke-on-Trent Young People's Lifestyle Survey was designed through a multi-partner consultation which included local schools, the Schools Health Education Unit, the National Health Service and the local government. Some questions were developed locally while others were taken from previously validated surveys. The 2013 survey contained 62 questions and the 2015 survey contained 64 questions; these were organised into six themes: tobacco use, food and drink, alcohol and drugs, emotional wellbeing, sexual health and sociodemographic questions. In both years, waterpipe tobacco prevalence was gathered using the following question: 'have you ever smoked 'shisha' (also known as a 'waterpipe')?' In 2013, the response options were 'no/don't know/yes', whereas in 2015 the response options were 'I have never smoked shisha/I have tried shisha once or twice/I use them sometimes (more than once a month)/I use them often (more than once a week)'. The 2015 survey also included an image of a waterpipe apparatus next to this question. Both surveys also asked 'Where do you smoke it [waterpipe]?' as a follow on question, and response options were 'at home/at school/in a shisha bar or lounge/at a friend's house/other'.

The primary outcome measures were lifetime waterpipe use (ascertained by answering 'yes' to the 2013 waterpipe tobacco prevalence question, and anything except 'I have never smoked shisha' for the 2015 waterpipe tobacco prevalence question), and regular waterpipe use, ascertained by answering positively to smoking either more than once a month or more than once a week in the 2015 survey. Independent variables included age (reported as a continuous