

# Shisha waterpipe use and awareness of health risks among young adults in a semi-rural underprivileged community in North West England

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## ABSTRACT

**INTRODUCTION** Waterpipe smoking has become increasingly popular among young adults across the globe. Evidence suggests waterpipes have overtaken cigarettes in popularity among university students in the UK. This survey aimed to measure the prevalence of use, awareness of the tobacco content and associated health risks of waterpipes among young adults in a non-university semi-rural underprivileged community in England.

**METHODS** A self-completed questionnaire was distributed by six schools and colleges to young adults aged 16–25 in Tameside, North West England.

**RESULTS** A total of 210 young adults completed the survey, of these 12% smoked cigarettes and 16% smoked waterpipes. Of those that smoked waterpipes, 45% smoked at home and 88% smoked in shisha bars. Of the respondents, 62% did not know that shisha waterpipes contained tobacco and 18% believed that waterpipes were less harmful than smoking cigarettes. There was no difference in knowledge of tobacco content, or of the associated health risks, between those who smoked waterpipes and those that did not. The majority of respondents (81%) stated that if they wanted to know more about how shisha tobacco could affect their health they would access information via the internet. Social networking websites was by far the most popular route for communication for messages about the health risks associated with smoking shisha waterpipes.

**CONCLUSIONS** These results suggest that waterpipes may have overtaken cigarettes as the method of choice for smoking tobacco among the young adult population in the UK.

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## INTRODUCTION

Waterpipe smoking (also called hookah, shisha, narghile, hubble bubble) is popular among young adults across the globe. Over half of university students in Jordan<sup>1</sup> and adolescents in Saudi Arabia<sup>2</sup> smoke waterpipes. One in five American college students reported smoking waterpipes and believed that waterpipe smoking is less harmful than cigarettes<sup>3</sup>. A survey of UK university students found that 14% smoked waterpipes in the previous month<sup>4</sup>.

Relative to cigarette smoking, waterpipe use is associated with greater carbon monoxide, similar

nicotine, and dramatically more smoke exposure<sup>5</sup>. Daily use of waterpipes produces a urinary cotinine level equivalent to smoking 10 cigarettes per day, and a single session of waterpipe use produces a urinary cotinine level equivalent to smoking two cigarettes in one day<sup>6</sup>.

In towns and cities across the UK, the number of shisha bars has increased dramatically in the past decade. In 2007 there were 179 shisha bars compared to 566 in 2012<sup>7</sup>. The packets of favoured tobacco sold in shisha bars often carry no health warnings, in direct defiance of the UK Trading

Standards regulations and the WHO advice that waterpipe tobacco should be subjected to the same regulation as cigarette and other tobacco products<sup>8</sup>.

Most of the reported data on waterpipe use in young adults has examined its use in cities and among university students. This report assessed waterpipe use in young adults in a semi-rural suburban town that contained no known shisha bars, although a large number of local shops and market stalls sell shisha paraphernalia and tobacco.

This survey aimed to measure the prevalence of waterpipe use, awareness of the tobacco content and associated health risks of waterpipes among young adults in Tameside in order to design an appropriate social marketing campaign targeted at this group.

## METHODS

A self-completion questionnaire was piloted with young adults before distribution to secondary schools and higher education colleges across Tameside. This resulted in the survey being shortened to the questions shown in Table 1 in an attempt to maximize uptake and completion.

Tameside is a semi-rural suburban area; poverty and unemployment levels are higher than average for England and the prevalence of cigarette smoking among adults is higher than the national average<sup>9</sup>. The targeted participants were people aged 16–25 years attending school or college. This included sixth form within school, sixth form college and higher education community college. The participating schools and colleges took the responsibility

*Table 1. Survey of young adults in Tameside; use and knowledge of shisha waterpipe tobacco smoking*

Participant demographics	Gender	n (%)	Age (years)	n (%)	
	Female	104 (49.5%)	16–18	187 (89%)	
	Male	106 (50.5%)	19–24	20 (10%)	
			>25	3 (1%)	
Do you smoke?	Yes	43 (20%)	Smoking methods	Cigarettes	25
	No	165 (79%)		Waterpipes	33
				Other	2
			Waterpipe venue	At home	15
				At shisha bar	29
Do shisha waterpipes contain tobacco?	Yes	80 (38%)			
	No	54 (26%)			
	Don't know	76 (36%)			
Is smoking a shisha pipe less harmful than smoking cigarettes?	Yes	38 (18%)			
	No	54 (26%)			
	Don't know	118 (56%)			
If you wanted to know more about how shisha affects your health, where would you look?	College	16 (8%)			
	Television	14 (7%)			
	Internet	171 (81%)			
	Facebook	15 (7%)			
	Friends	27 (13%)			
	Other	16 (8%)			
What is the best way to give you information about how shisha affects your health?	Social networking sites	73 (35%)			
	Leaflets	52 (25%)			
	Posters	50 (24%)			
	Text/BBM messages	41 (20%)			
	Information from college	40 (19%)			
	Pens	34 (16%)			
	Billboards	25 (12%)			
	Business card size info	16 (8%)			
	Screen savers	12 (6%)			
Local newspaper	9 (4%)				

of conducting questionnaires with samples of young adults in their establishments. The paper questionnaire was distributed to students over the age of 16 years and completed independently and anonymously by the students.

The significance of the differences in responses between those that reported smoking waterpipes and those that did not was calculated using the z-test for the difference between two independent proportions.

## RESULTS

### Demographics

The total number of eligible full-time students enrolled at the six participating schools and colleges was 2624. A total of 210 questionnaires were completed with a response rate of 8%. Males (106) and females (104) were equally represented among the respondents. The vast majority of respondents were aged 16–18 (133), with just 23 people over the age of 19 years participating (Table 1).

### Survey responses

Survey responses are summarized in Table 1, and 20% of respondents identified themselves as smokers. Of the 43 self-reported smokers, 16 (37%) were female and 27 (63%) were male, while 30 were aged 16–18 years, 11 aged 19–24 years, and 2 were aged over 25 years. In all, 25 people (12%) reported that they smoked cigarettes and 33 (16%) reported smoking shisha waterpipes. Of those that smoked waterpipes, 15 (45%) smoked at home and 29 (88%) smoked in shisha bars.

Of the total respondents, 62% did not know that shisha waterpipes contained tobacco. Of those that smoked waterpipes, 18 (55%) knew that they were smoking tobacco, 10 (30%) reported that waterpipes did not contain tobacco and 5 (15%) did not know. A total of 177 of the respondents did not smoke waterpipes and of these, 62 (35%) stated that it contains tobacco ( $z$ -score=2.17, two-tailed  $p=0.03$ ), 44 (25%) stated it did not contain tobacco ( $z$ -score=-0.58, two-tailed  $p=0.56$ ) and 71 (40%) did not know ( $z$ -score=-2.75, two-tailed  $p=0.006$ ). The young people who smoked waterpipes were significantly more likely to report that waterpipes contain tobacco, and significantly less likely to report that they did not know whether waterpipes contained tobacco, than those that did not smoke waterpipes.

When asked if smoking waterpipes was less harmful than smoking cigarettes, 18% of respondents reported that waterpipes are less harmful than smoking cigarettes, and 56% answered that they did not know. Of those who smoked waterpipes, 7 (21%) thought that waterpipes were less harmful than cigarettes, 12 (36%) thought they were not less harmful and 14 (42%) did not know. Of those who did not smoke waterpipes, 31 (18%) thought waterpipes were less harmful than cigarettes ( $z$ -score=0.51, two-tailed  $p=0.61$ ), 42 (24%) thought they were not less harmful ( $z$ -score=1.52, two-tailed  $p=0.13$ ) and 104 (59%) did not know ( $z$ -score=-1.74, two-tailed  $p=0.08$ ). There was no statistically significant difference between those that smoked waterpipes and those that did not in their beliefs about whether or not waterpipes are less harmful than cigarettes.

The vast majority of respondents (81%) stated that if they wanted to know more about how shisha tobacco could affect their health they would access information via the internet.

Social networking websites was by far the most popular route for communication for messages about the health risks associated with smoking shisha waterpipes, with 35% of respondents preferring this route, compared to 25% preferring the next most popular route of leaflets.

## DISCUSSION

This survey has demonstrated that the use of shisha waterpipes amongst young adults in a semi-rural, underprivileged area in North West England is similar to that in university students in large cities<sup>7</sup>. The proportion of young adults who reported using waterpipes (16%) was higher than the proportion who reported smoking cigarettes (12%), reflecting the trends found in other young adult populations, and suggesting that there is no difference in the popularity of waterpipes in the young adult university population compared with the non-university population. It has previously been reported that smoking waterpipes has become more common than smoking cigarettes among UK medical students<sup>10</sup>, and US university students<sup>11</sup>. This survey suggests that waterpipes may be replacing cigarettes as the method of choice for smoking tobacco among the young adult population in the UK.

Despite there being no known shisha bars in the study area, 88% of waterpipe users reported smoking in shisha bars. This suggests that either young people are travelling into neighbouring cities in order to visit shisha bars, or that illicit venues exist in the local town. These results suggest that the increased use of waterpipes by young adults cannot solely be attributed to the increased number of shisha bars in cities and large towns.

Most young people in this survey were unaware that shisha waterpipes contain tobacco; however those that smoked waterpipes had much greater awareness of the tobacco content than those that did not. There was no difference in this sample between those that smoked waterpipes and those that did not in their beliefs about whether or not waterpipes are less harmful than cigarettes. Previous work has identified widespread misconceptions about the tobacco content and health risks of smoking waterpipes, however we did not find, as Grekin and Ayna did among American students, that waterpipe smoking is more common among those that believe waterpipe smoking is less harmful than cigarette smoking<sup>3</sup>.

The preferred route for the communication of information about waterpipes and health in this sample was via internet social marketing. This has important implications for those working in public health who wish to raise awareness of the health risks associated with waterpipe use among young adults. It has been noted that local government and public health in the UK has been slow to respond to the increasing popularity of waterpipes as a means of tobacco use<sup>12</sup>. Traditional routes of communication, such as local newspaper articles, may not reach this group.

### Limitations

The number of both cigarette and waterpipe users identified might be underestimated by this survey due to respondents being unwilling to identify themselves as tobacco users in the school or college setting. This survey only included young adults engaged in education. A large proportion of young adults in Tameside are not engaged in education, and these results may therefore not be representative of the wider young adult population of Tameside.

### CONCLUSIONS

This survey shows the low awareness of the tobacco content and of the associated health risks of waterpipes among young adults in an underprivileged area of England. Awareness needs to be raised about the tobacco content and associated health risks of waterpipe smoking through traditional and social media, so that young people can make fully informed decisions related to their health.

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#### CONFLICTS OF INTEREST

Authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none was reported.

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