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Waterpipe Tobacco and Cigarette Smoking Among University Students in Jordan

Omar F. Khabour, Ph.D., M.Sc.^a, Karem H. Alzoubi, Ph.D.^a, Thomas Eissenberg, Ph.D.^{b,c}, Purnima Mehrotra, Ph.D.^d, Mohammed Azab, M.D., Ph.D.^e, Mary Carroll, B.A.^f, Rema A. Afifi, Ph.D.^g, and Brian A. Primack, M.D., Ph.D.^{f,h,*}

^aDepartments of Medical Laboratory Sciences, and Clinical Pharmacy, Jordan University for Science and Technology, Irbid, Jordan

^bDepartment of Psychology and Institute for Drug and Alcohol Studies, Virginia Commonwealth University, Richmond, VA, USA

^cSyrian Center for Tobacco Studies, Aleppo, Syria

^dDepartment of Social and Behavioral Health, Virginia Commonwealth University, Richmond, VA, USA

^eDepartment of Forensic Medicine and Toxicology, Faculty of Medicine, The Hashemite University, Zarqa, Jordan

^fDepartment of Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

^gDepartment of Health Promotion and Community Health, Faculty of Health Sciences, American University of Beirut

^hDepartment of Pediatrics, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

Abstract

Setting—While waterpipe and cigarette smoking are well studied in Syria and Lebanon, data from Jordan are sparse.

Objectives—To characterize the relative prevalence of waterpipe tobacco and cigarette smoking among university students in Jordan, and to compare the demographic and environmental factors associated with each form of tobacco use.

Design—We surveyed 1845 students randomly recruited from four universities in Jordan. We used multivariable logistic regression controlling for clustering of individuals within universities to determine associations between demographic and environmental covariates and waterpipe tobacco and cigarette use.

*Corresponding Author: Brian A. Primack, M.D., Ph.D., 230 McKee Place #600, Pittsburgh, PA 15217, (412) 586-9789 (phone), (412) 692-4858 (fax), bprimack@pitt.edu.

ETHICAL APPROVAL

This study was approved by the Institutional Review Boards of the Jordan University of Science and Technology, Yarmouk University, Irbid National University, and Jerash Private University.

CONFLICTS OF INTEREST / DECLARATIONS

None declared.

AUTHOR CONTRIBUTIONS

Writing of initial draft: OK, KA, BP; Writing of additional sections: TE, PM, MA, MC, RA; Collection of data: OK, KA, TE, PM, MA, RA; Obtaining funding: TE, BP; Statistical analyses: BP, MC; Providing supervision: TE, RA, BP; Revision for important intellectual content: TE, PM, RA, BP; Approval of the final manuscript: OK, KA, TE, PM, MA, MC, RA, BP

Results—Waterpipe tobacco smoking rates were 30% in the past 30 days and 56% ever, and cigarette smoking rates were 29% in the past 30 days and 57% ever. Past 30-day waterpipe tobacco smoking rates were 59% for males and 13% for females. Compared with males, females had substantially lower odds of being current waterpipe (OR=0.12, 95% CI=0.10–0.15) or cigarette (OR=0.08, 95% CI=0.05–0.14) smokers. Compared with waterpipe tobacco smoking, current cigarette smoking was more significantly associated with markers of high socioeconomic status.

Conclusion—Waterpipe tobacco smoking is as common as cigarette smoking among Jordanian university students. While cigarette smoking is consistently associated with high socioeconomic status, waterpipe tobacco smoking is more evenly distributed across various populations.

Keywords

hookah; narghile; college; Middle East

INTRODUCTION

Annually, 5–6 million people worldwide die as a result of tobacco use. Cigarette smoking is the most studied form of tobacco use, but other methods are becoming common worldwide, including tobacco smoking using a waterpipe (hookah, narghile).^{1, 2}

Emerging literature suggests that waterpipe tobacco smoke contains many of the same toxicants as cigarette smoke, including carcinogenic polycyclic aromatic hydrocarbons,³ volatile aldehydes,⁴ carbon monoxide,⁵ and nicotine.^{6–8} A single waterpipe tobacco smoking session may involve inhalation of 50–100 times the smoke volume inhaled with a single cigarette,⁵ and someone who smokes tobacco from a waterpipe once each day has the plasma nicotine concentration of someone who smokes 10 cigarettes daily.⁹ Compared with white blood cells collected from cigarette smokers, white blood cells collected from waterpipe tobacco smokers demonstrate higher levels of chromatin exchange, suggesting increased carcinogenic activity.¹⁰ Epidemiological studies also suggest that waterpipe tobacco smoking may be associated with respiratory infections, pulmonary disease, and cancer.^{1, 2, 11, 12}

Waterpipe tobacco smoking is emerging among young adults across the United States^{12–17} and Europe.^{18, 19} However, this form of tobacco smoking has long been associated with countries of the Eastern Mediterranean region (EMR) such as Lebanon, Syria, Egypt, and Jordan. In these countries, the prevalence of using a waterpipe to smoke tobacco ranges from about 20% to 69%, and it is particularly high among university students.^{20–27} Certain countries of the EMR have substantial infrastructure in place to track waterpipe tobacco smoking. For example, Syria is host to the Syrian Center for Tobacco Studies, funded by the U.S. National Institutes of Health. Data provided by this center have been used to support public health policy changes, such as Syria's presidential decree in October 2009 banning cigarette and waterpipe smoking inside public spaces. However, Jordan is a neighboring EMR country with less research infrastructure in this area.

While preliminary data suggest that over half of Jordanian university students have ever smoked waterpipe tobacco,^{22, 24, 28} important gaps in the current literature constrain our ability to develop effective interventions to reduce use of all types of tobacco in Jordan. First, prior surveys have examined relatively small samples and used quasi-random sampling methods.^{22, 24, 28} Second, prior surveys assessed a relatively narrow set of demographic variables such as age, gender, and nationality.^{22, 24, 28} However, integrated social and environmental frameworks of public health²⁹ suggest that other factors such as parental education and household income and structure may also be associated with

waterpipe tobacco use, and assessing a full range of factors may be valuable in order to target future interventions. Finally, little prior work has directly compared cigarette and waterpipe tobacco use in Jordan. In the U.S. and other EMR countries, these forms of tobacco use appeal to different individuals.^{13–15, 23, 25, 30} Because information such as this has implications for targeting interventions, it would be worthwhile to directly compare cigarette and waterpipe use in Jordan as well.

Therefore, the primary purpose of this study was to characterize the prevalence of waterpipe tobacco and cigarette smoking among university students in Jordan; and the secondary aim was to compare and contrast demographic and environmental factors associated with each type of substance use in this population.

METHODS

Participants and Procedures

Undergraduate students from two public (Jordan University of Science and Technology; JUST, and Yarmouk University) and two private (Irbid National University and Jerash Private University) universities in Jordan were recruited for this study. Data were collected under the supervision of collaborating faculty members at JUST. To be included in the study, participants had to be at least 18 and enrolled as undergraduate students in one of the four universities.

To recruit a representative sample, we obtained the number of students enrolled in each university from registration offices and determined corresponding representative sample sizes. We then stratified students in each university by discipline (e.g. medicine, science, and arts) and university. In these universities, students are randomly divided into class sections, and according to *a priori* criteria, sections with between 10 and 100 students were eligible. From a list of all sections, we used a random number table to select sections to be sampled from each discipline. To ensure roughly equal numbers of students from each level (1st–4th), selection of sections from the random number table was repeated until requisite equal numbers were attained. A total of 1932 students were recruited based on this procedure.

The survey instrument was constructed by investigators from both the U.S. and Jordan during discussions in Irbid, Jordan. It was subsequently modified based on the results of 4 focus group discussions with single-gender, representative groups of students in Jordan. The revised instrument was pilot tested in Jordan with 50 students and further modified, and the final survey instrument was translated into Arabic and then back-translated into English by bilingual faculty members in Jordan.

The surveys were administered in classrooms in the participating universities in April and May 2010 during a 5-week period. For each section of students selected, prior permission of instructors was obtained to conduct the survey during class section time. Survey administrators were research personnel (including OK and KA) who emphasized that responses would be anonymous and confidential. Participants signed informed consent form along with the completed surveys. Individuals took 20 minutes to complete the survey and were paid approximately 2 Euros for their participation. Institutional review boards at the participating universities approved the study.

Measures

Many of the measures used in the survey were adapted from previous studies on waterpipe use conducted in the U.S. and in the Eastern Mediterranean Region,^{20–27} while others were

constructed for the purpose of this study. Scales were Likert-type and higher scores indicated greater endorsement of the statement, unless otherwise noted.

Waterpipe tobacco use and cigarette smoking—Participants were asked to report having smoked waterpipe tobacco, even a puff, in the past 30 days and ever. Because of its clinical relevance, our primary outcome variable was use in the past 30 days, which we defined as current use, and our secondary outcome was ever use. We also asked participants to estimate the age at which they began using cigarettes and/or waterpipe, with response categories of (1) less than 11; (2) 11–14; (3) 15–17; (4) 18–21; and (5) more than 21 years.

Demographics—Individuals reported university attended, year, age, and sex. Because socioeconomic status (SES) has been linked with tobacco use in similar populations, we assessed this construct using paternal education, monthly household income, number of others living in the home, number of rooms in the home, and pocket money spent monthly.^{20–27, 31} For monthly household income, we asked participants to select the most appropriate category from three choices: 0–500, 501–900, and 901 or more JD, where 1 JD is equivalent to approximately 0.97 Euros. For pocket money spent monthly, we offered choices of 0–100, 101–150, 151–200, or 201 or more JD. For the number of others living in the home and number of rooms in the home, we asked participants to enter the most appropriate number in a blank space. For analysis, we grouped participants into categories which approximated tertiles for each of these variables. We also provided items assessing residence, including whether participants lived in a city (vs. village) and whether or not they lived with parents.

Analysis

We computed prevalence for both past 30-day use and ever use for both waterpipe tobacco smoking and cigarette smoking. We used chi-square statistics to determine statistical significance of differences in prevalence across sociodemographic variables. We then used multivariable logistic regression to determine the independent association between independent and dependent variables. We developed separate models for each smoking outcome. For our primary analyses, we included in our models all measured covariates with theoretical associations with either the predictors or the outcomes. The only measured covariate not included in our models was year within the university, because of its duplication of and multicollinearity with the age variable. In all of our models, we controlled for clustering of students within each of the four universities. Individuals with any missing data were not included in multivariable analyses; the resulting proportion of missing observations for each of the four multivariable models ranged from 5.0% to 7.6%. For all analyses, we defined statistical significance *a priori* with a two-tailed alpha of 0.05. Statistical analyses were conducted using Stata version 11.1 (StataCorp, College Station, TX, 2010).

RESULTS

Of the 1932 students selected for participation, we received evaluable data from 1845 (95%) individuals, all of whom were included in the final sample of the study. Of the participants, 37% were male and 63% were female, and mean age was 21.4 years (SD=3.0). The majority of students attended JUST (32%) or Yarmouk University (52%). For about one third (31%) of participants, their fathers had completed high school, and for another third (37%) they had completed college. Nearly half of students (47%) reported a monthly household income 500 JD (~485 Euros). The majority (70%) of individuals lived in households with 6 or more people, and for the majority of families (72%), the home had five or fewer rooms. Participants were evenly divided between living in a city vs. a village (53% vs. 47%), and

the vast majority (85%) lived with their parents (Table 1). Use of waterpipes to smoke tobacco was 30% in the past 30 days and 56% ever. Use of cigarettes was 29% in the past 30 days and 57% ever. Of the 1,058 students who ever used cigarettes, 856 (80%) had also used a waterpipe, and of the 1,020 participants who had used a waterpipe, 856 (84%) had also used cigarettes. Of the 534 students who currently used cigarettes, 383 (72%) had also currently used a waterpipe, and of the 545 participants who currently used a waterpipe, 383 (70%) had also currently used cigarettes.

Although self-reported age of initiation was similar between cigarette and waterpipe tobacco smokers, age of first cigarette use tended to be slightly earlier. Of the 1050 ever cigarette smokers with available data, the majority had begun smoking cigarettes at ages 18–21 (44%), 15–17 (25%), 11–14 (15%), or less than 11 (10%). Of the 1023 ever waterpipe tobacco smokers, most had begun at ages 18–21 (50%), 15–17 (27%), 11–14 (11%), or greater than 21 (8%).

In bivariate analyses, all waterpipe tobacco and cigarette smoking outcomes were significantly associated with university, year, age, and gender (Table 1). Current and ever use of both substances peaked among undergraduates who had spent more than 4 years at their institution and were aged 23 and over. Compared with females, males more frequently used waterpipe in the past 30 days (59% vs. 13%, $P<.001$) and ever (81% vs. 41%, $P<.001$). Similarly, compared with females, males were substantially more likely to have used cigarettes in the past 30 days (62% vs. 11%, $P<.001$) and ever (82% vs. 43%, $P<.001$). While paternal education was not consistently significantly associated with use of either substance, all usage variables were for those with higher incomes, fewer individuals living in the home, and higher amounts of pocket money spent.

Multivariable models which controlled for all covariates and accounted for clustering of individuals within universities demonstrated significantly greater waterpipe tobacco smoking and cigarette smoking at Yarmouk, Irbid, and Jerash compared with JUST for almost all variables (Table 2). However, the magnitudes of these differences were all higher for cigarette smoking compared with waterpipe tobacco smoking. Current use of cigarettes was highest among those aged 23 and over (vs. those aged 18–19, OR=2.25, 95% CI=1.53–3.32), but these differences were not statistically significant for waterpipe tobacco smoking (OR=1.33, 95% CI=0.998–1.77). Compared with males, females had sharply lower odds for current use of waterpipes (OR=0.12, 95% CI=0.10–0.15) and cigarettes (OR=0.08, 95% CI = 0.05, 0.14).

Compared with the lowest tertile, those with the highest income (901 or more JD) had higher odds of being current cigarette and waterpipe tobacco smoking; however, odds ratios were higher for cigarette smoking (OR=1.93, 95% CI=1.55–2.40 versus OR=1.21, 95% CI=1.08–1.35, respectively). Current cigarette smoking was significantly associated with each of the two other markers of high socioeconomic status (fewer living in the home and more rooms in the home), while current waterpipe tobacco smoking was not independently associated with these variables (Table 2).

Ever use of waterpipe was associated with lower odds of living in a village (vs. city, OR=0.70, 95% CI=0.61–0.80), but no other substance use outcome was associated with this variable. Finally, those who lived away from parents had lower odds of ever using waterpipes (OR=0.75, 95% CI=0.56–0.996) or being current cigarette smokers (OR=0.70, 95% CI=0.50, 0.96).

DISCUSSION

This study demonstrated that half of students sampled overall, and over three fourths of males, had ever smoked tobacco from a waterpipe. Similarly, over one-third of students overall and over half of males had smoked a waterpipe in the past 30 days. These are comparable to previously documented prevalence rates in Jordan using less rigorous sampling methods^{22, 24} and to rates found among university students in neighboring countries.^{1, 25, 32} Rates of waterpipe tobacco smoking were comparable to cigarette smoking.

Our findings were also consistent with others in the EMR who have found higher prevalence of smoking tobacco products among men compared with women.^{33, 41–44} This is assumed to be a result of cultural normative beliefs that differentially regulate the behavior of men and women.^{24, 31–33} Findings regarding age are also consistent with other studies from the EMR.^{20–27} While waterpipe tobacco smoking in North America and Europe tend to be popular among young college students,^{14, 17, 34} in the EMR individuals seem to increase use over time. This may indicate increasing dependence among people who began as experimenters. It will be valuable to follow patterns involving age and waterpipe tobacco smoking in the US and Europe over time to determine whether those patterns become more like those currently manifested in the EMR.

Our findings regarding the increased popularity of use of tobacco products at private universities may seem counterintuitive to those in the West, where substance use is more common among those in lower socioeconomic strata.³⁵ However, in Jordan, as in many developing nations around the world, use is higher among those with higher socioeconomic status, who are able to afford these products.^{20–27}

Consistent with prior research,^{12–17} there was substantial overlap between waterpipe and cigarette smoking in our population. However, it is also notable that the overlap was not exact, and that many waterpipe tobacco smokers did not also smoke cigarettes. For example, of the 545 participants who were current waterpipe tobacco smokers, 162 (30%) were not current cigarette smokers. This suggests that waterpipe tobacco smoking may affect many individuals who may have otherwise been unexposed to the harmful combustion products of tobacco.

It may also seem counterintuitive that students living on their own had lower odds of smoking waterpipe compared with those living with their parents, as Western data generally show increased use among students living without parents.^{12, 14, 17} However, in the EMR certain forms of substance use, including waterpipe tobacco smoking, are commonly shared within a family.^{2, 31} Thus, those still living with their families may have support systems facilitating waterpipe smoking, such as increased access to and familiarity with waterpipes, shisha, and other paraphernalia that they would not have to pay for from their own money.

While cigarette smoking was nearly always associated with markers of high socioeconomic status, waterpipe tobacco smoking was more evenly distributed among those of various levels of socioeconomic status. This was also the case for age and gender. For example, while compared with those aged 18–19 years those over 23 years had more than twice the odds of current cigarette smoking, waterpipe tobacco smoking was more evenly distributed among those of all ages. These findings suggest that it may be valuable for interventions to prevent and control tobacco use among university students to be specific to tobacco type. For waterpipe, interventions may need to be tailored to reach a range of individuals with a wider variety of sociodemographic characteristics, while cigarette-related interventions may be focused on those with higher socioeconomic status and who are older. Qualitative methods which allow more in-depth understanding of the factors influencing initiation and

continuation of use would be valuable to explore these issues and help develop interventions.

Despite careful attention to random selection of our sample within each of the four target universities, its external generalizability is limited because our study did not involve all universities in Jordan. Because our sample was disproportionately female, and because males are more likely to smoke tobacco, the actual rate of use of these substances in Jordanian universities as a whole is likely to be higher than we report here. Our study is also limited in that we only assessed university students; thus, we cannot infer rates of substance use in non-university populations. Finally, because of the cross-sectional nature of our data, we cannot infer causality from these findings.

In conclusion, despite these limitations, this study finds waterpipe tobacco smoking to be as common as cigarette smoking in Jordan among university students, suggesting that increased surveillance and attention to this behavior is warranted. In general, while both forms of substance use were associated with males of higher socioeconomic status, waterpipe tobacco smoking was more evenly distributed among those of various sociodemographic characteristics, which will assist development of interventions.

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Demographic and Environmental Associations with Waterpipe Tobacco and Cigarette Smoking Among Jordanian University Students

Table 1

Participant Characteristic	N (Column %)	Waterpipe Tobacco				Cigarettes			
		Current Use		Ever Use		Current Use		Ever Use	
		Row %	P†	Row %	P†	Row %	P†	Row %	P†
University									
Jordan University of Science and Technology	584 (32)	24	<.001	51	<.001	17	<.001	47	<.001
Yarmouk University	952 (52)	28		54		31		59	
Irbid University	169 (9)	47		73		46		75	
Jerash University	144 (8)	46		65		53		69	
Year									
1st	361 (20)	27	<.001	51	<.001	23	<.001	48	<.001
2nd	326 (18)	24		51		24		53	
3rd	568 (31)	29		54		29		59	
4th	482 (26)	35		59		35		60	
More than 4th	74 (4)	49		80		51		76	
Not undergraduate	35 (2)	29		63		31		64	
Age									
18–19	366 (20)	22	<.001	48	<.001	19	<.001	45	<.001
20	377 (20)	23		49		20		50	
21	435 (24)	28		53		26		56	
22	362 (20)	33		58		31		61	
23 or more	305 (17)	48		73		56		77	
Sex									
Male	675 (37)	59	<.001	81	<.001	62	<.001	82	<.001
Female	1168 (63)	13		41		11		43	
Paternal Education									
Did not complete high school	325 (18)	34	.22	55	.22	35	.048	61	.14

Participant Characteristic	N (Column %)	Waterpipe Tobacco				Cigarettes			
		Current Use		Ever Use		Current Use		Ever Use	
		Row %	P†	Row %	P†	Row %	P†	Row %	P†
Completed high school	576 (31)	31		56		29		58	
Completed college	686 (37)	28		54		27		54	
Completed advanced degree (e.g., MA, PhD)	249 (14)	33		62		31		58	
Monthly Household Income									
0–500 JD‡	859 (47)	26	<.001	50	<.001	25	<.001	53	.006
501–900 JD	512 (28)	29		56		29		58	
901 or more JD	459 (25)	39		66		38		62	
Number of Others Living in the Home									
0–5	563 (30)	34	.02	63	<.001	34	.002	64	<.001
6–7	630 (34)	31		57		30		57	
8 or more	660 (36)	27		48		25		51	
Number of Rooms in the Home									
1–4	792 (43)	29	.24	53	.03	29	.04	56	.36
5	527 (29)	30		55		26		56	
6 or more	525 (29)	33		60		33		59	
Pocket Money Spent Monthly									
0–100 JD‡	489 (27)	19	<.001	43	<.001	22	<.001	49	<.001
101–150 JD	783 (43)	28		54		27		56	
151 or more JD	571 (31)	43		68		39		66	
Urbanity									
City	954 (53)	32	.26	59	.001	28	.10	57	.76
Village	858 (47)	29		51		31		57	
Living Arrangement									
With parents	1560 (85)	30	.09	55	.53	30	.38	57	.61
Other	267 (15)	35		57		27		56	

* Values may not add up to 100 due to rounding.

[†] Computed using chi-square analyses comparing proportion of users in each sociodemographic category.

[‡] 1 JD = about 0.97 Euro.

Table 2Multivariable Analyses Comparing Associations Among Current Waterpipe and Cigarette Smokers^{*}

Participant Characteristic	AOR (95% CI) for Waterpipe Tobacco Smoking [†]		AOR (95% CI) for Cigarette Smoking [†]	
	Current Use	Ever Use	Current Use	Ever Use
University				
Jordan University of Science and Technology	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
Yarmouk University	1.26 (1.22–1.31)	1.22 (1.10–1.36)	2.27 (2.15–2.39)	1.58 (1.49–1.68)
Irbid University	2.07 (1.88–2.27)	2.07 (1.70–2.53)	2.33 (1.95–2.78)	2.24 (2.06–2.44)
Jerash University	1.46 (1.32–1.62)	1.02 (0.83–1.27)	2.73 (2.33–3.21)	1.38 (1.29–1.47)
Age				
18–19	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
20	0.96 (0.81–1.14)	0.97 (0.91–1.02)	0.94 (0.83–1.05)	1.20 (0.99–1.46)
21	1.12 (0.83–1.51)	1.02 (0.78–1.33)	1.14 (0.79–1.67)	1.28 (0.94–1.75)
22	1.26 (0.77–2.07)	1.17 (0.92–1.48)	1.27 (0.79–2.03)	1.35 (1.06–1.72)
23 or more	1.33 (0.998–1.77)	1.56 (1.35–1.81)	2.25 (1.53–3.32)	2.22 (1.59–3.09)
Sex				
Male	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
Female	0.12 (0.10–0.15)	0.17 (0.14–0.21)	0.08 (0.05–0.14)	0.18 (0.14–0.24)
Paternal Education				
Did not complete high school	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
Completed high school	0.98 (0.73–1.30)	1.14 (1.02–1.28)	0.87 (0.69–1.11)	0.91 (0.82–1.02)
Completed college	0.86 (0.65–1.12)	0.95 (0.84–1.08)	0.92 (0.76–1.13)	0.81 (0.69–0.94)
Completed advanced degree (e.g., MA, PhD)	0.94 (0.68–1.32)	1.11 (0.77–1.60)	1.06 (0.74–1.51)	0.88 (0.57–1.37)
Monthly Household Income				
0–500 JD [‡]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
501–900 JD	1.02 (0.75–1.38)	1.13 (1.01–1.26)	1.31 (1.03–1.68)	1.25 (0.89–1.77)
901 or more JD	1.21 (1.08–1.35)	1.27 (1.08–1.50)	1.93 (1.55–2.40)	1.19 (0.89–1.58)
Number of Others Living in the Home				
0–5	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
6–7	1.01 (0.77–1.32)	0.85 (0.60–1.20)	0.92 (0.72–1.18)	0.77 (0.48–1.22)
8 or more	0.79 (0.57–1.10)	0.60 (0.43–0.84)	0.59 (0.48–0.72)	0.57 (0.34–0.97)
Number of Rooms in the Home				
1–4	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
5	1.31 (1.25–1.37)	1.22 (1.08–1.38)	1.06 (0.79–1.43)	1.20 (1.003–1.43)
6 or more	1.17 (0.84–1.64)	1.28 (1.14–1.44)	1.21 (1.04–1.39)	1.21 (0.83–1.76)
Pocket Money Spent Monthly				

Participant Characteristic	AOR (95% CI) for Waterpipe Tobacco Smoking [†]		AOR (95% CI) for Cigarette Smoking [‡]	
	Current Use	Ever Use	Current Use	Ever Use
0–100 JD [‡]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
101–150 JD	1.61 (1.21–2.13)	1.48 (1.12–1.94)	1.05 (0.68–1.60)	1.20 (1.12–1.30)
151 or more JD	2.19 (1.39–3.44)	1.87 (1.09–3.20)	1.18 (0.75–1.84)	1.38 (1.06–1.81)
Urbanity				
City	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
Village	0.83 (0.68–1.02)	0.70 (0.61–0.80)	1.22 (0.74–2.02)	0.92 (0.67–1.27)
Living Arrangement				
With parents	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]	1.0 [Reference]
Other	0.96 (0.66–1.40)	0.75 (0.56–0.996)	0.70 (0.50–0.96)	0.84 (0.67–1.05)

* Values may not add up to 100 due to rounding.

[†] Multivariable analyses controlled for all variables in the table and were adjusted for clustering of individuals within institutions.

[‡] 1 JD = about 0.97 Euro.