Evaluation of Association Between Demographic Variables with Smoking Rate in Rural Cultures

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Abstract

Objective-Smoking remains the single most important modifiable risk factor for cardiovascular disease and also the leading preventable cause of death. There have been a good many studes on the association between demographic variables and smoking rate in urban areas; however, very little has been done in rural areas**.**

Methods- This cross-sectional study was conducted on 1375 individuals randomly selected from those residing in the villages of Bandar Abbas. Data were collected by questionnaires and were analyzed by SPSS-11.

Results- 55.5 percent of the study group were female. Twenty-two percent were single and 74 percent were married. Eighty percent of them had some level of education up to high school. 15 percent had history of cigarette smoking and 22 percent had history of hobble use. Forty-two percent of those who had history of cigarette smoking consumed more than 10 cigarettes per day. Smoking was significantly more prevalent among males, married and low-educational subjects. The smoking rate increased with the increase in age up to 40 years old in the total population and the male subgroup, but there was no association between age and smoking rate in the females. The hookah consumption rate was significantly more prevalent in the females and married individuals with low educational status and older age groups. This association was significant in the male and female subgroups, but hookah consumption rate decreased after 60 years of age in the males.

Conclusion- According to this study the most important modifiable demographic factor for smoking rate was low educational status, therefore increasing the educational status in rural areas can decrease smoking rate and also cardiovascular diseases in the rural population ***(Iranian Heart Journal 2007; 8 (4):29 -34).***

Key words: demographic variables ■ smoking rate ■ rural cultures

Smoking represents an important and rapidly growing avoidable global cause of cardiovascular disease and total death. Worldwide, more than 1.3 billion people smoke cigarettes or other tobacco products.[1] Tobacco currently causes an estimated 4.9 million deaths annually (8.8 percent of all deaths). This represents 1 million more tobacco-related deaths than in 1990, with the increase being most marked in developing countries.[2] Forty-seven percent of men and 12 percent of women in the world are current smokers. In the developing countries on average, about 48 percent of adult men and 7 percent of women

Received July 27, 2006; Accepted for publication November 11, 2007.
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smoke, and the smoking rate is increasing about 3.4 percent per year.[3,4] Throughout the developing world, women have traditionally represented only a small proportion of the number of smokers. As women's spending power increases, tobacco companies are targeting them as customers, and women-specific health education and quality programs are rare.[5] A unique feature of the developing world is the easy access to smoking due to the availability of relatively inexpensive tobacco products. In many developing countries, male smoking rates already exceed the peak rates of the developed world and rates are expected to continue rising among both men and women.

Smoking doubles the incidence of coronary heart disease and increases coronary heart disease mortality by 50 percent, and these risks increase with age and the number of cigarettes smoked.

Cigarette smoking is the leading preventable cause of death; more than 40 percent of smoking-related death results from cardiovascular disease,[6] with an additional 8 percent attributable to second-hand smoke exposure. Passive exposure also increases coronary risk.[7,8]

The risk of death from coronary heart disease increases by up to 30 percent among those exposed to environmental tobacco smoke at home or work.[8] Consumption of as few as one to four cigarettes daily increases coronary artery disease risk. Such light levels of smoking have a major impact on myocardial infarction and all-cause mortality even among smokers who do not report inhalation.[9]

In addition to myocardial infarction, cigarette consumption directly relates to the increased rates of sudden death, aortic aneurysm formation, symptomatic peripheral vascular disease, and ischemic and hemorrhagic stroke.[10]

It has been claimed that over 100 million people worldwide smoke water-pipes ("narghile", "hubble-bubble") daily.[11,12]

It is a common practice in the Arabian peninsula, Turkey, India, Pakistan, Bangladesh, and some regions of China.

In some areas, hubble- bubble smoking is more prevalent than cigarette smoking.

The recent trend of increased hubble-bubble use was illustrated in a Syrian study of 268 hubble-bubble smokers; most of them, regardless of age, had begun smoking in the 1990s.[13]

In France and other European nations, there has been an upsurge of hubble-bubble use in the past several years. Despite its widespread use, few studies to date have documented the adverse health consequences of hubble-bubble smoking.

This lack of data results at least somewhat from the fact that hubble-bubble smoking is mostly a non-western habit. Existing studies suggest pathologic consequences for the most part similar to those induced by cigarettes and additional risks of infection related to smoking practice.[14]

Hubble-bubble smoking as a health risk behavior enjoying an impressive revival deserves the attention of public heath policy makers and academic researchers. There is a paucity of epidemiologic data regarding hubble-bubble use. Unfortunately, despite the fact that developing countries bear the brunt of the tobacco use epidemic, most research and treatment efforts address developed nations.

Methods

This cross-sectional study was conducted on 1375 residents in Bandar Abbas villages (south of Iran) selected by random clustering. The villages from Bandar Abbas rural areas and households were selected from these areas by cluster random sampling with the number of households chosen per village proportional to the population within that village. Trained national health care workers interviewed respondents at home and obtained data, according to purposes of this study on age, gender, marriage, educational status, past

or present history of smoking, age of smoking initiation, method of smoking (cigarette or hubble-bubble) and daily cigarette consumption with the aid of a questionnaire. Where possible, the questionnaire data were precoded for ease and accuracy of collection. Multivariate logistic regression analyses were performed. Odds ratio and x^2 test of significance were used to assess the association between demographic variables and cigarette or hubble-bubble smoking. Smoking was used as a dependant variable; and age, gender, and educational status were taken as predictor variables in the final model.

Results

A total of 1375 persons participated in this study. Of these, 55.5 percent were female and the rest were male. Twenty-two percent were single, and 74 percent were married.

Table I. Distribution of population according to age and educational status

age (year)	Amount (percent)	Educational status	Amount (percent)
Below 20	16.8	Illiterate	29.6
21-30	34.3	Elementary	32.2
31-40	20.5	Middle School	18.7
41-50	15	High School	17.4
51-60	8.2	College	0.9
More than 60	5.2		

98.9% of them were educated at most up to high school. Fifteen percent had a history of cigarette smoking and 22% had a history of hubble-bubble use at present or in the past. The mean age of cigarette smoking initiation was 18.5 years (SD ±7.39), and the mean age of hubble-bubble initiation was 21.7 years (SD ±8.9). Forty-two percent of those who had a history of cigarette smoking smoked more than 10 cigarettes per day. Cigarette smoking was significantly more prevalent among males (19.1% vs. 1.4%), married (11.1% vs. 5%) and people with low educational status (no case of cigarette smokers among those with college level of education).

Table II. Prevalence of smoking with respect to gender

Prevalence (percent) / Gender	Cigarette	Hubble-bubble
Female	1.4	15.1
Male	19.1	9.6

Table III. Prevalence of smoking in terms of marital status

Prevalence (percent) / Marital status	Cigarette	Hubble-bubble
Single	5	4.6
Married	11.1	14.1

These associations were also significant in males but not in females. Cigarette smoking increased with increasing age up to 40 years old in the total population and also male subgroup; but there was no association between age and cigarette smoking in the females. The hubble-bubble consumption was significantly more prevalent in the females (15.1% vs. 9.6%), married (4.1% vs. 4.6%), people with low educational status (no hubble-bubble consumption among those with college level of education), and also the older age group. These associations were also significant in the male and female subgroups, but hubble-bubble consumption rate decreased after 60 years of age in males.

Table IV. Prevalence of smoking in females as regards marital status

Prevalence (percent) / Marital status	Cigarette	Hubble-bubble
Single	0	4.6
Married	1.9	16.3

Table V. Prevalence of smoking in males in terms of marital status

Prevalence (percent) / Marital status	Cigarette	Hubble-bubble
Single	9.2	4.5
Married	22.9	11.3

Table VII. Prevalence of smoking in total population with respect to age

Prevalence (percent) / Age (year)	Cigarette	Hubble-bubble
Below 20	4.9	3.3
21-30	5.4	7.1
31-40	16	18.3
41-50	15.8	20.9
51-60	12.6	19.8
>60	2.9	22.4

Table VIII. Prevalence of smoking in total population in terms of educational status

Prevalence (percent) / Educational status	Cigarette	Hubble-bubble
Illiterate	5.9	21.5
Elementary	13.6	13.3
Middle School	12.4	5.5
High School	5.5	4.8
College	0	0

Table IX. Prevalence of smoking in females as regards educational status

Prevalence (percent) / Educational Status	Cigarette	Hubble-bubble
Illiterate	0.8	23.8
Elementary	2.9	13.4
Middle School	1	4.8
High School	0	6.5
College	0	0

Table X. Prevalence of smoking in males in terms of educational status

Prevalence (percent) / Educational status	Cigarette	Hubble-bubble
Illiterate	15.7	16.5
Elementary	29	13.1
Middle School	20.7	6.1
High School	9.7	3.8
College	0	0

Table IX. Prevalence of smoking in females in terms of age

Prevalence (percent) / Age(year)	Cigarette	Hubble-bubble
<20	1.5	3.8
21-30	1.2	7.9
31-40	0.7	24.5
41-50	3	26.4
51-60	1.9	18.5
>60	0	36.4

Table X. Prevalence of smoking in males in terms of age

Prevalence (percent) / Age(year)	Cigarette	Hubble-bubble
<20	9.9	2.4
21-30	11.2	6.1
31-40	34.2	9.9
41-50	29.5	14.6
51-60	24	21.4
>60	4.3	15.6

Discussion

In this study, a substantial number of people were found to be smokers (cigarette or hubble-bubble). The prevalence of cigarette smoking was much higher among men (19.1%) than that among women (1.4%). This ratio is comparable to the prevalence of cigarette smoking in similar studies in Pakistan[15,16] and India.[17]

A study conducted in Pakistan revealed a prevalence of 43.7% among men and 5.5% among women for cigarette smoking. In urban India (Delhi), the prevalence of smoking was 45% among men and 7% among women. Prevalence of hubble-bubble smoking in our study was about 11.7%. In Lebanon, hubble-bubble smoking rates of 14.6% have been reported.[18] Gender differences in our study for the prevalence of cigarette smoking were much more pronounced than those for the hubble-bubble. Also, among Arab women in many countries, there is less of a stigma associated with hubble-bubble smoking than with cigarette smoking and, therefore, less of a gender difference.[19-20]

In our study, the mean age of smoking initiation was 18.5 years (SD ±7.3) for cigarettes and 21.7 years (SD ±8.9) for the hubble-bubble. Therefore, about 70% of the people who were cigarette smokers began smoking before 25 years of age. That is comparable to the findings of a similar study conducted in Pakistan, which revealed a percentage of 80.[16] In our study, 58% of cigarette smokers consumed fewer than 10 cigarettes per day. A WHO report in 1999

revealed that the smokers consumed an average of 14 cigarettes per day.[3]

Marriage and male gender were significantly associated with cigarette smoking in this study, comparable to similar studies. With increasing educational status from preliminary to college level, the prevalence of cigarette smoking significantly decreased in our study, which chimes in with studies conducted in other countries. This is probably due to increasing concern about its hazardous effects.[16,21,22] While in many other studies cigarette smoking increased with increasing age, in our study cigarette smoking increased only up to 40 years of age; the reason is not clearly known but it may be due to the discontinuation of smoking on physicians' advice following the onset of respiratory complications or ischemic heart disease. According to studies carried out in the United States, smoking rates tend to be higher among blacks, those with lower socioeconomic status and those with a high school education or less.[23] Rates of tobacco use are increasing among adolescents, young adults and women.[24,25]

Hubble-bubble smoking in this study was significantly more prevalent in females, married persons, people with low educational status and also the older age groups.

A recent cross-sectional survey of 587 university students in Syria found that 25.5% of the men and 4.9% of the women were hubble-bubble smokers. The mean age at initiation was 19.2 and 21.7 years, respectively.[26] Thus, in comparison with our findings, hubble-bubble smoking was more prevalent in males but the mean age of initiation was comparable. This may be due to the practice of hubble-bubble smoking in this population in dormitories, cafes or restaurants and almost always in groups, which is uncommon in the social culture of women in our population.

In some societies, gender may play an important role in maintaining low rates of female cigarette smoking, but may not have the same magnitude of effect on hubble-bubble use.[27,28] One recent study in Syria revealed that hubble-bubble use generally is more positively perceived than cigarette smoking, especially for women. This point refers to the greater prevalence of hubble-bubble use in females in comparison with cigarette smoking in our study.

Despite public health legislation, the tobacco industry continues its aggressive targeting of young adults, who are most susceptible to new addiction.[29,30] Thus, primary prevention remains the most important population-based component of any smoking reduction strategy. With respect to our findings, which revealed a significant association between smoking and educational status in rural cultures, increasing educational status in rural cultures can decrease smoking rate and consequently cardiovascular diseases in the rural population.

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