ORIGINAL ARTICLE

Prevalence of Smoking in the Outskirts of Mashhad, Iran

MAJID KHADEM-REZAIYAN[1], MALIHEH DADGARMOGHADDAM[2,*]

[1] Resident of community medicine, Department of community medicine and public health, Mashhad University of Medical Sciences, Mashhad, Iran
[2] Assistant Professor of community medicine, Department of community medicine and public health, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Abstract

Background: Globally, smoking is one of the main causes of morbidity and mortality. It is also an important social determinant of health and the largest contributor to health inequalities. While several prevalence studies are conducted on special groups such as physicians, less such studies have been focused on deprived areas (areas with lacking adequate food, shelter, education, etc). The aim of this study is to evaluate the prevalence of smoking in the outskirts of Mashhad, Iran.
Methods: This analytical cross-sectional study was performed on 500 residents of sub-urban areas of Mashhad, Iran. Subjects were included and were interviewed using a multi-stage random sampling method.
Results: Composition of subjects, 40% (200) were male. Mean age was 35±11 years. Twenty-four percent (117) of subjects were smokers (18% women and 33% of men). Hookah was used twice as much as cigarettes (18% vs. 9%, respectively). Smoking was most prevalent between 25 and 34 years old for both genders. More than 75% of smokers had low grade education.
Conclusion: Smoking is of high prevalence in suburban areas of Mashhad. Target oriented interventions are needed to effectively lower this major health risk factor.

Keywords: Smoking; Hooka; Outskirts of Mashhad; Iran

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INTRODUCTION

Smoking is an important public health problem and one of the main causes of morbidity and mortality because of its association with a number of life-threatening illnesses (1). If the current trend is allowed to continue, it is estimated that by 2020, around 10 million deaths will occur each year (2) and consumption of tobacco products will lead to at least 450 million deaths worldwide within the next 50 years (3).

Documented reports have shown that smoking is strongly correlated with poverty and is more prevalent in deprived societies. In 2008, the rate of smoking was 27% among adults living in households in England headed by a smoker with manual occupation. The rate was significantly lower (16%) in households of non-manual occupation (4,5). It is declared that smoking is an important social determinant of health and is the largest contributor to health inequalities between the high and low income countries (6). Whilst the prevalence of smoking may have declined over the recent decades, this drop is not very significant in the under-privileged groups (4,5).

While many studies have been conducted on the prevalence of smoking in sub-groups of populations (7), few highlighted the disparity in terms of their residential background. Considering the excess mortality and morbidity in urban areas relating to smoking compared to non-urban areas in many countries (8,9), it is necessary to investigate the prevalence of smoking in the outskirts of large cities, typically home to the general underprivileged communities. Several studies have investigated this aspect and their results have shown that the area of dwelling influenced smoking and other health-related behaviors (10-12).

Our study provides an overview of smoking in the outskirts of Mashhad (the capital of Razavi Khorasan in the North-East of Iran, the second metropolitan city in Iran) in 2014. According to the Deputy of Health, it is estimated that 1.2 million people live in the outskirts of Mashhad, one of the disadvantaged regions with poor health conditions. Therefore, evaluation on the prevalence of smoking in this specific region is important since smoking is a major risk factor for morbidity and mortality and also an important determinant for health.

METHODS

This cross-sectional study was carried out in 2014 in the outskirts of Mashhad, North-East of Iran. A sample size of at least 500 people ($p=0.5$, $\alpha=0.05$ and $\beta=0.2$ considering attrition bias) was assessed through a cross-sectional study in December 2014 in Mashhad, Iran. Sampling was performed using a multi-stage random method with special attention to the population proportion (based on the most recent census of suburban residents) in each region of Mashhad. The first step defined a proportional sample size for each of the five regions.

*Correspondence to: Maliheh Dadgarmoghaddam; MD. Assistant Professor of community medicine, Department of community medicine and public health, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
Tel: +98 9155084676, Email: dadgarmm@mums.ac.ir
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The second step was a random selection of five districts in each region. The third step was random selection of a valley subcategory and filling a checklist using a face-to-face interview. Interviewers comprised of two healthcare volunteers in each region familiar with the neighborhood. We held a meeting to reduce inter-observer biases. Sampling process continued until the size of a cluster was fulfilled. There were two inclusion criteria: willingness to participate in the study and age factor (18-65 years old).

The checklist was designed to gather demographic information together with smoking habits.

Data were statistically analyzed using Student T, Mann-Whitney and Chi-squared tests to examine differences and associations between responses. A level of $p<0.05$ was considered to be statistically significant.

RESULTS

There were 502 participants in this study, of which 40% (200) were male. The mean age was 35±11 years. Thirty percent were either illiterate or had only elementary education. Only 13% had higher than diploma degree. There was a gender difference in education; women were dominant in two ends of education continuum: 70% (18) of the illiterates and 60% (23) with bachelors were females ($p=0.02$).

Twelve percent (22) of the male participants were jobless. Although 49% (93) were employed, 27% (52) had a temporary job. Eighty percent (234) of females were housewives and only 8% (24) were employed ($p<0.001$).

Twenty-four percent (117) of subjects were smokers (18% of women and 33% of men); 9% smoked cigarettes while `18% smoked hookah. Smoking was most prevalent for those in the age group of 25 to 34 years in both genders. Cigarette smokers were mostly men (21% vs 1.7%) ($p<0.001$), but there was no significant gender difference for hookah (20% vs 17%) (Figure 1). Whereas male subjects smoked daily, the women were recreational smokers, i.e. 2-3 times per month ($p=0.012$). There was no gender difference for hookah users (Figure 2).

Cigarette smoking was most prevalent among individuals with higher level education (half of all smokers) ($p=0.008$).

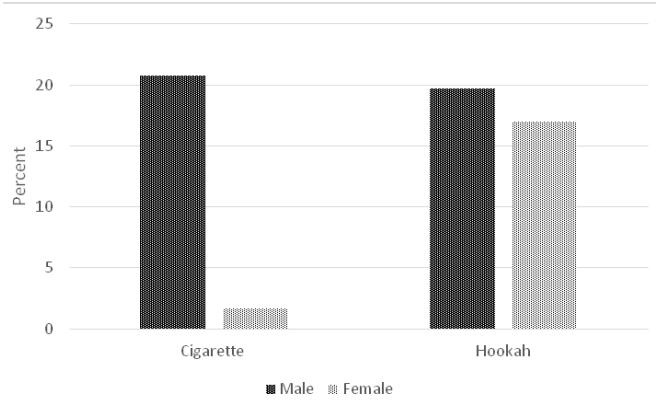

Figure 1. Percentage of cigarette and hookah smokers based on the gender

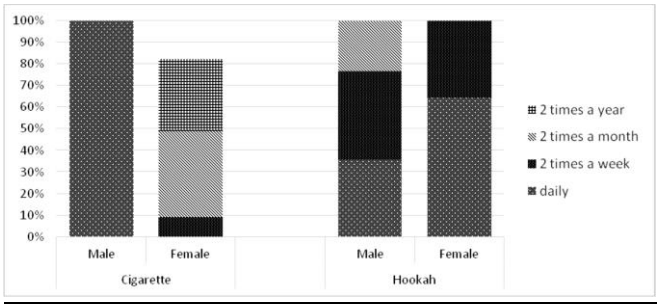

Figure 2. Percentage of occasional cigarette and hookah smoking based on gender

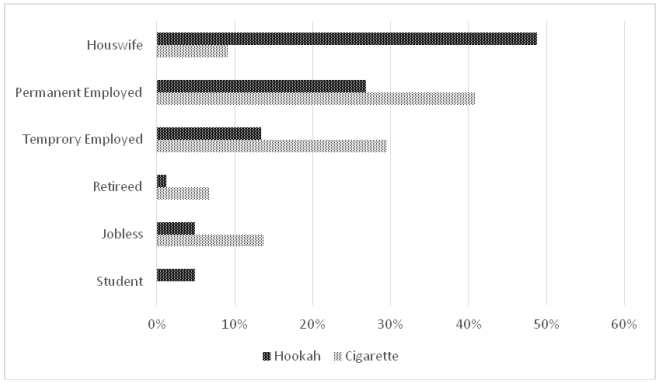

Figure 3. Percentage of cigarette and hookah usage in different job titles

Seven percent (3) of cigarette smokers were illiterate or subjects with higher than diploma degree. Hookah usage was most prevalent among individuals with elementary or high school degree. However, this difference had a borderline statistical significance ($p=0.07$). Twelve percent (11) of hookah smokers were illiterate or had higher than diploma degree.

Permanent job was a pre-disposing factor for cigarette smoking, as working subjects consisted the majority of smokers ($p<0.001$). Although nearly half of all hookah smokers were housewives, this was not statistically significant ($p=0.9$) (Figure 3).

DISCUSSION

This study was performed in the sub-urban regions of Mashhad to evaluate smoking prevalence. Data indicate that 24% of the study subjects smoked cigarette or hookah. Smoking ratio in both men and women was higher - especially among women - than previously reported in other studies in Iran (Shiraz: 26% in men and 3.6% in women; Isfahan: 18.7% in men and 1.3% in women; Mashhad: 17% in men and 2.5% in women, Tehran: 17.5% in men and 9.6% in women, Yazd: 31% in men, Kerman: 33.5% in men and 2.9% in women) (13- 19). This could be due to the target population as this study focused on sub-urban population while other research were conducted in urban regions.

In the suburban regions, hookah is not considered as an unhealthy habit and probably remains as a part of lifestyle. However, the large discrepancy in women's smoking rate between urban and suburban regions may also be explained by the conservative Iranian society: smoking is considered an unfavorable practice among females in urban regions unlike other parts of the world (20). Furthermore, these data are based on self-reported smoking, which may lead to some under-reporting in the prevalence of smoking.

Evidence has shown that nearly 11% and 15%, boys and girls respectively, who claimed they were non-smokers but were found to be smokers from plasma cotinine test (14). National surveys have reported the prevalence of smoking to be 35% for men and 7% for women in one study, and 26.6% for men and 4.2% for women in a separate one (21,22). Over all, male smokers out-numbering women has prevailed in China (23), Korea (24), Europa (25) and United States of America (26).

This study supports the previously reported data that the rate of smoking was higher among poorly educated population (16,27).

It also indicates that smoking habits begin earlier in the sub-urban regions. A national study performed in 2005, reported that most smokers were in the 35-44 age group (22). A more recent study has found similar results. (28). However, this study revealed that the age group of 25 – 34 constitutes the highest rate.

Similar to this study, the majority of smokers are shown to be cigarette smokers and only a small percentage smoked hookah (14,28). The pattern of smoking was similar to a recent national study (28).

A comprehensive study has estimated that nearly 11,000 deaths were attributed to smoking in 2005. In a regional analysis, in which Iran is considered as four regions (Southeast, North-Northeast, West, Central), an annual 2,100 deaths reportedly happened in the North-Northeast which included Khorasan Razavi province. Smoking has been associated with several adverse effects: a well-known risk factor for non-communicable diseases in adults (29,30), and growth retardation along with other symptoms in children (31,32).

As previously stated, self-reporting of smoking could have caused an under-estimation. We also did not evaluate teenage smoking, which is also of great importances. While most other studies focused merely on cigarette smoking, our study included the use of hookah as well, hence adding strength to the study.

Many studies have stated that knowledge of health particularly in sub-urban areas such as in this region is vital (33), hence, the health authorities must attempt to provide health education to create greater health awareness and reduce the risk factors involved.

CONCLUSION

Cigarette smoking was different according to gender, age group and educational level. Smoking is of high prevalence in suburban areas of Mashhad especially in men. Target oriented interventions are needed to effectively lower this major health risk factor.

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Conflict of Interest: None to be declared

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