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Daily Expenditure on Cigarette Smoking in Tehran

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ABSTRACT

***Background**: Smoking is the leading cause of preventable deaths worldwide. Since the price and expense of tobacco products are important factors relating to smoking and tobacco control, it is necessary to calculate the expense of daily smoking in order to enforce tobacco control programs. This study was done to assess the expense of daily smoking among smokers in Tehran.*

***Materials and Methods:** A cross-sectional study was done among a random population sample of 3026 smokers in different areas of Tehran. Data collection was done via WHO and IUATLD (International Union Against Tuberculosis and Lung Disease) questionnaires by questioning health-care workers. Finally data were analyzed by Chi-Square, Fischer's exact and logistic regression tests.*

***Results:** Among 3026 participants, 2413 (80.9%) persons were male. The mean age of the population was 40±12.7 years. 49.2% of the population (1439 persons) had below diploma degrees and the maximum frequency distribution of occupation belonged to employees (36.7%). The mean age of initiation of smoking was 21±8.19 yrs. and the mean number of cigarettes smoked daily was 16.81±10.61 cigarettes. 41.8% of population (1192 persons) had daily smoking expense of 2,510 to 4,500 Rials*. The mean was 4,680±388.78 Rials. In evaluation of daily smoking expense according to gender, over 6,500 Rials daily expenditure was more frequent among men (20.1%) in comparison with women (13.5%) (P=0.000). Persons with daily income of less than 50,000 Rials, spent 9.3% of it for smoking.*

Conclusion:** Because of the low price of cigarette in Iran, there is huge expenditure on smoking. Therefore, it is recommended to pay special attention to economical strategies in tobacco control programs and to coordinate with WHO Framework Convention on Tobacco Control (FCTC). **(Tanaffos 2006; 5(4): 65-70)

***Key words:** Cigarette, Daily expense, Cigarette price.*

* 1 Dollar ~ 9000 Rials, 1 Euro ~ 11000 Rials in the year 2006

INTRODUCTION

Smoking is the leading cause of preventable deaths and disability worldwide (1). Cigarette smoking is the cause of 90% of lung cancers, 40% of all cancers, 75% of respiratory diseases, 50% of cardiovascular diseases and 12% of all deaths (2). Nowadays, smoking causes 5 million deaths annually in the world and will rise to 10 million deaths a year in 20 years of which 7 million deaths will be in developing countries (3). Thus, it seems that smoking

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prevalence and tobacco-related diseases and deaths are on the increase in developing countries (4).

One important influential factor in tobacco smoking is the price; therefore, financial policies relative to tobacco products is one of the fundamental strategies in tobacco control programs. This implementation not only provides governments with high incomes, but also is an important strategy for tobacco smoking control (5).

According to the World Bank report, a 10% increase in cigarette prices results in 7% increase in government income, 4% decrease in the rate of cigarette smoking in developed countries and 8% decrease in the rate of cigarette smoking in developing countries; because tobacco smoking decreases in a lower percentage compared with increasing price and also the money saved by ex-smokers will be spent on other materials which include tax (6).

A study in Scotland showed that smoking-related absence from work costed about 40 million Euros annually and the decreased output was estimated to be 45 million Euros (7).

Based on the report by the International Union Against Tuberculosis and Lung Disease (IUATLD), the World Bank annually spends 200 million Dollars on the health centers worldwide (8).

WHO estimates that the price of a pack of Marlboro cigarettes is equivalent to 6 kg rice in Bangladesh, 1 kg fish in France and Ghana or 12 eggs in Panama (9).

Many studies have been done to assess the financial effects of tobacco smoking from different aspects. A study in the U.S.A shows that children with parents that smoke have lower quality of nutrition (10).

Also, according to a study in Bangladesh, annual expenses of cigarette smoking could be used to prevent death of 10,000 children in Bangladesh annually (11).

Several studies have been performed in Iran in regard to the prevalence of tobacco smoking, but it seems that there are no specific studies regarding smoking expenses in Iran except for un-documented information in the media and newspapers. Therefore, this study was conducted to estimate the daily expenditure on cigarette smoking in Tehran.

MATERIALS AND METHODS

This cross-sectional study was done in Tehran during 2003-2004 with the cooperation of health deputies of three main Universities: Tehran, Iran, and Shaheed Beheshti Universities of Medical Sciences. Thirty health-care workers were selected for training courses and conduction of this study. Health-care workers were chosen randomly and had a fair distribution in the city. Each one filled the questionnaire of his/her own area. Thirty clusters were chosen in the city and the centers of these clusters were the houses of health-care workers. Each health-care worker questioned 100 smokers.

The questionnaires were designed according to WHO and IUATLD questionnaires and were given to health-care workers to be filled in their residential areas.

Given the comparison of the two groups of 400 men and women and using the formula $N=(Z_1-\alpha/2)^2 \times P(1-P)/d^2$ sample size was calculated to be 800 and 3026 questionnaires were completed during the study.

Measured variables have been described based on frequency distribution. In this study, age, gender, occupation, quality of the cigarette, cigarette consumption per day, daily smoking expenses and physical dependency have been evaluated.

The collected data were statistically analyzed via SPSS and Stata-8.0 software and by using frequency and chi-square tests.

RESULTS

In this study, 3026 questionnaires were completed. Among the participants 80.9% (2413 persons) were male. The minimum age of participants was 13 years, the maximum age was 92 years and the maximum age distribution was in the range of 30-40 years (34.1%). The mean age of population was 40±12.7 yrs. Among the participants 49.2% (1439 persons) had under diploma degrees. Considering the occupation, the maximum distribution (36.7%) belonged to the employees and other distributions were 34.3% businessmen, 1.7% students, 9.4% housewives, 10% workers, 4.6% unemployed and 3.2% other occupations.

25.8% of the population declared their age of initiation of smoking to be between 16-20 years which had the maximum distribution. The maximum distribution of the age of initiation of smoking was 13 years (17.5%). The mean age of initiation of smoking was 21±8.19 yrs. Overall, 43.4% (1288 persons) had been smoking for more than 20 years. The minimum years of smoking was 1 year and maximum years of smoking was 80. The maximum distribution of the years of smoking was 10 years and the mean of smoking years was 19±1169 yrs. Also 54% of the participants (1609 persons) had daily cigarette consumption of 11-20 cigarettes while the minimum was 1 cigarette. Maximum daily consumption was 80 cigarettes and the maximum distribution of daily consumption was 20 cigarettes. The mean daily consumption was 16.8±10.61. Focusing on the daily smoking expenses, for 41.8% of the population (1192 persons) it was between 2,510 to 4,500 Rials per day. The minimum daily expenditure was 100 Rials, the maximum was 63,000 Rials and the maximum distribution was 4,000 Rials. Totally, the mean daily smoking expenditure was 4,680±388.78 Rials. Regarding the daily income of the family, 19.1% of the population had less than 50,000 Rials, 31.6% had between 50,000 to 100,000 Rials and 49.2% had more than 100,000 Rials.

According to the analytical results of this study, frequency distribution of daily smoking expenditure according to the gender shows that, it was between 2,510 to 4,500 Rials in both men and women (Table1).

Frequency distribution of daily smoking expenses according to marital status shows that, daily smoking expenditure was between 2,510 to 4,500 Rials (46% of married and 41.7% of singles) in both married and singles.

Frequency distribution of daily smoking expenditure according to daily income shows that, daily smoking expenditure between 2,510 to 4,500 Rials had maximum distribution in all three groups and in those with daily income "less than 50,000 Rials" this figure was more than others (Table 2).

Table 1. Frequency distribution of smoker's gender with regard to daily expenditure on cigarette smoking in Tehran 2004.

			Classification of daily expenditure (Rials)				Total
			Below 2500	2510-4500	6500-4510	Over & equal 6500	
Gender	Male	Numbers	549	934	327	455	2265
		Percentage	24.2%	41.2%	14.4%	20.1%	100.0%
	Female	Numbers	118	248	113	75	554
		Percentage	21.3%	44.8%	20.4%	13.5%	100.0%
Total		Numbers	667	1182	440	530	2819
		Percentage	23.7%	41.9%	15.6%	18.8%	100.0%

P = 0.000

Table 2. Frequency distribution of daily smoking expenditure according to daily income in 2004.

			Classification of daily expenses (Rials)				Total
			Below 2500	2510-4500	6500-4510	Over & equal 6500	
Daily income (Rials)	More than 100,000	Numbers	304	566	206	285	1361
		Percentage	22.3%	41.6%	15.1%	20.9%	100.0%
	Between50,000 to 100,000	Numbers	217	305	186	168	876
		Percentage	24.8%	34.8%	21.2%	19.2%	100.0%
	Less than 50,000	Numbers	126	302	34	66	528
		Percentage	23.9%	57.2%	6.4%	12.5%	100.0%
Total		Numbers	647	1173	426	519	2765
		Percentage	23.4%	42.4%	15.4%	18.8%	100.0%

P = 0.000

DISCUSSION

It seems that availability and quality of information increase the reliability of the estimated expenses. In spite of this fact, figures obtained by this study only indicate one harmful effect out of endless hazards of cigarette smoking and it could not convey all the social hazards and economical burden of addiction to smoking.

This study shows a baseline to determine the primary financial burden of addiction to nicotine. The effect of raising prices and its effect on smoking has been obvious since long ago.

One of the fundamental laws of economy states that, if the price of a commodity increases, the demand for that commodity will decrease. In the past, researchers believed that "the addictive nature of the smoking is an exception to this rule and because of this addiction, smokers will pay any price for cigarettes for their satisfaction". Many studies have shown that, this discussion is unfounded and that daily smoking depends on the price of cigarettes and this affects usage. For instance, tax increase in Canada during 1982 to 1992 led to an increase in the cigarette price causing a considerable decrease in cigarette smoking. The same trend was seen in South Africa and England (12). Researchers found that, increasing the cigarette prices involves many smokers to quit smoking. It may also prevent many people from starting to smoke in the first place or ex-smokers to restart smoking (13).

Another study in England shows that, 72 billion cigarettes equal to 17 billion pounds are annually smoked in this country, and each smoker spends 91800 pounds on smoking per year. This figure in England is equal to more than 100 return tickets to Australia or a villa in Costa Blarca or a three room house in north-east England (14).

According to another study in Vietnam, smoking expenditure of the smokers of this country is 1.7 times more than educational expenses and 1.5 times greater than health care expenses (15).

Given the results of this study, age of initiation of smoking among the general population was lower than expected (maximum age distribution of over 13 years is 17.5% and maximum distribution of 16-20

years is 35.8%). Thus, we should enforce effective policies to prevent initiation of smoking in children (9).

These results show that, daily cigarette usage among the general population is 16.8 cigarettes. This figure is not very different from the results of other studies around the world (9).

However, considering the daily smoking expenditure, the figure of 4680±388 Rials per day is an insignificant figure, and the price of cigarettes in Iran is much cheaper than in other countries (15). This difference is the cause of higher tendency and rate of smoking in developing countries. Based on the results of this study and by a simple calculation, it is seen that the mean price of a pack of cigarette (20 cigarettes) is 5571 Rials which is very low compared with other countries (13). Therefore, if we generalize these results to the whole country and according to the statistics given by the Health Ministry which says that, 12.5% of the Iranian population are smokers, and if we suppose that Iran's population is 70 million persons and each smoker averagely spends 4650 Rials on smoking per day, we can conclude that 8,750,000 smokers spend 40,775,000,000 Rials on cigarettes per day and 14,880 billion Rials are spent on cigarettes in our country annually which is about 3 to 4 folds more than figures spent on smoking-related expenses. Evaluation of the results of this study shows that smoking expenditures are higher among low income families.

In this study we conclude that primary expenditures of tobacco smoking have been ignored. Considering the necessity of cooperating with FCTC in our country after signing and ratifying this contract, it seems that one of the most important strategies in tobacco control programs involves giving a proper attention to price policies.

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