

# Comparison of the Knowledge, Attitude and Practice of Iranian College Students about Tobacco Use in Comparison to their American and Chinese Counterparts

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## INTRODUCTION

Smoking is the main preventable cause of early and untimely death and disabilities, which leads to approximately four million deaths every year.<sup>1</sup> Although smoking causes more mortality than other factors such as acquired immune deficiency disease (AIDS), alcohol drinking, driving accidents, murder, suicide, and fire, but still about one third of the adult population use tobacco products worldwide.<sup>2</sup> According to the Centers for Disease Control and Prevention (CDC) in the United States of America, 80% of adults, started smoking before the age of eighteen and about three thousand people are smoking regularly at this early stage of life.<sup>3</sup>

If no considerations are taken in order to stop

## ABSTRACT

**Objectives:** The purpose of this survey was to compare the knowledge, attitude and practice of Iranian, American and Chinese college students about tobacco use.

**Methods:** In this cross-sectional study, a questionnaire that was designed for the first time in comparative studies for the purpose of gathering information from American and Chinese college students was used. The students were selected by convenience sampling.

**Results:** In Iran, 958 participants (456 male and 485 female) enrolled in the study. In addition, 1534 Chinese participants (39.7% female and 60.3% male) and 597 American participants (62.1% female and 37.9% male) were included in the study. Comparing the consumption of tobacco among college students of the three mentioned countries, it is shown that American women have more experiences in smoking cigarettes, cigars, pipes and chewing tobacco.

**Conclusions:** This survey determined the tendency toward smoking among the students and their perception of this behavior and its outcome among the students from Iran, USA and China. It provided significant differences, however the culture dissimilarities in responding to such type of surveys should be taken into account.

**Keywords:** Youths, Tobacco, International, Knowledge, Attitude, Practice.

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this harmful trend, in the near future more than five million children will die because of future tendency to smoke. Intervention and prevention in the age of less than 20 years old has a great importance.<sup>4</sup> Smoking in this age, causes more morbidity because of accumulation of narcotics over times, also intrigues other friends to smoke cigarettes. Tobacco use at this stage of age provides the chance of being attracted to other drugs and still it is difficult for them to give up smoking though they have realized the dangers of cigarette smoking.<sup>5</sup> Therefore, planning preventive actions is an important step to be considered.

National surveys in Iran showed that the mean age of the first attempt to smoke was

in the teenage group.<sup>6</sup> Similar situation exists in various countries such as the United States (USA),<sup>7</sup> and China.<sup>8</sup> In spite of marked differences in the socio-cultural background of various countries, the knowledge, attitude and practice (KAP) of youths about smoking is important about their smoking behavior. Such information is also important for policy making and preventive measures at population level. Therefore, in this study, we aimed to determine the KAP of a sample of Iranian college students and to compare it with their American and Chinese counterparts.

## METHODS

### *Questionnaire*

We used a questionnaire, with the original edition prepared and edited by Torabi et al. (Chancellor's Professor, applied Health Science Department, Indiana University, USA) in 2002.<sup>9</sup> For the purpose of accomplishing this survey, the questions were translated into Persian and for assuring its comprehensiveness and proportionateness to Iranian cultural environment, after consulting with Dr. Torabi, the necessary modifications were taken into account. To be assured about the accuracy and effectiveness of the translation, we used the back translation method, i.e. the Persian-translated questionnaire was again translated in to English, and unsuitable translations were corrected.

This English edition has been used for gathering information from American and Chinese college students. According to the obtained information, the antecedent of questionnaire in English edition goes back to the study which was done by Indiana prevention resource center. Title of the noted study is consumption of alcohol, tobacco and other drugs in children and adults of Indiana. The attitude scale of using tobacco which is used in this survey was first established by Awaisu et al.<sup>10</sup>

The translated questionnaire contained 55 questions, nine of them being demographic ones. Eleven questions were about knowledge; eighteen questions about attitude and seventeen about practice. Because of the increase in waterpipe smoking by young people, we added four related items to the practice questions, hence the number of practice questions increased to 21, and the number of total questions increased to 59. Questions about awareness had multiple choices with only one right answer, but the applied scale in questions about attitude was based

on Likert system.

Practice questions contained 5 questions about smoking cigarette, cigar, chewing tobacco, pipe, and waterpipe. For all of these noted tobacco products, the duration of consumption in the previous month and year, as well as quitting smoking were considered.

### *Study population*

The inclusion criteria were studying in university and 18 to 24 years of age. We included this group to be comparable to studies conducted in the US and China. The male-to female ratio and the proportion of junior to senior students were similar to the above mentioned surveys. The students were selected by convenience sampling.

### *Statistical analysis*

The outcomes of the studies were analyzed statistically by version 13.0 SPSS for windows (SPSS Inc., Chicago, IL) in order to obtain a reliable measurement for each scale.

For reliability testing of knowledge and attitude scales, Cronbach's alpha reliability coefficients were calculated for the English version of the questionnaire to examine the internal consistency of these sections of the questionnaire.

Regarding to the understanding of each student who consumed cigarette, the score of one was given to correct answers and zero to wrong or blank answers. So, in the first stage, regarding the knowledge of students for each answer sheet, the total scores of knowledge questions could be a number between 0 and 11. After changing the obtained numbers to the percentage, one could achieve the percentage between 1 and 100 percent.

The perception of each student involving in smoking cigarettes was achieved to add the whole numbers in the questionnaire. The yes/no questions indicated being for or against smoking. The numbers were given between 1 and 5. Number five showed the hatred of students towards smoking cigarettes and decreased from five toward one. The scale of each answer could be between 18 and 90. To change the number to the percentage scale, the outcome would reach between 20 and 100 percent.

In order to determine the differences in terms of gender, the analysis of variance (ANOVA) was used. The chi-square test was used to compare the categorical variables. P value of less than 0.05 was used for the reliability of each statistics.

## RESULTS

The overall reliability coefficient for the attitude scale was 0.82. The reliability coefficient for the knowledge test was 0.54. This knowledge test is not a norm reliability test and its reliability was acceptable since it relied strongly on the criteria.

### *The Participants' Qualifications:*

In Iran, from 1200 responses, 958 were complete to be used in the survey, which 456 of them were the responses given by male students (48.5%) and 51.5% by female students.

In China, out of 1534 students participating in the survey, 39.7% were women and 60.3% were men. In the United States, from 597 participants, 62.1% were women and 37.9% were men. Overall, these three surveys comprised a total number of 3089 students consisting of 47.5% women and 52.5% men.

Significant differences existed in the structure of the place of the residence in three countries. In Iran, 73.7% of students were from urban areas, whereas 47% of American college students were from suburban areas. Among Chinese students, 33.8% were from urban areas and 33.9% from rural areas.

Regarding to marital status, the majority of students were single although the number of single smoker students in China was higher than single smoking ones in Iran and the US.

When the Iranian participants were asked about their health status, 92.7% of them responded that they were in a good health condition; 5.9% were on average and 1.4% were of poor health conditions. In USA, 67% enjoyed a very good health condition and 30.5% of them were average. In China, 83.5% were of good health and 14.5% were among the average.

When the Iranian students were asked about their daily stress, 42.2% claimed that they have not much stress, 38.6% of them told they were fairly stressful and 14.5% of them were of the average, 10.4% had no stress and 8.8% of them suffered from sever stress. Chinese and Ameri-

can students had more stressful perception of their life.

Internal consistency of the knowledge and the attitude of the three groups' students were compared, and the results are summarized in Table 1. In all three surveys it was shown that almost a lower level of knowledge exists (about 70%), but concerning the attitude, in all three countries satisfactory attitude score was obtained.

Table 2 shows data regarding tobacco use among students (both men and women). Similarly, Table 3 shows the average number of attitude regarding to tobacco use among students (both men and women). Americans seem to be more knowledgeable comparing with Iranian and Chinese students. The ANOVA test showed that there were no significant differences between the sexes and the average knowledge. The result obtained for men was ANOVA = 1.26412,  $P = 0.628$ , and ANOVA = 1.26412,  $P = 0.96$ . But the average meaningful knowledge, however, existed between Iran and the other countries. (ANOVA for all = 342.703,  $P < 0.001$ ).

In Iran in both men and women this attitude is more than the Americans and Chinese. ANOVA test showed that among the sexes, the average of attitude could clearly be observed (In men, ANOVA = 141.30,  $P < 0.001$  and ANOVA = 284.14,  $P < 0.001$  for women). There is also a meaningful scale of attitude existed between the countries studied in this survey (ANOVA = 394.86,  $P < 0.001$ ).

Information about age of the first smoking experience is summarized in Table 4. It was shown that 70% of smoking participants started smoking between the ages of 19-22. The survey carried out in China shows that among the cigarette addicts, most of the smokers had started trying cigarettes even before the age of thirteen. This percentage (37.6%) is much higher than in Iran (20.1%) and the US (17.9%). In Iran, this percentage increases along higher age groups. In the US, most of the smokers are much older than the age of thirteen. This statistics seems to be more expressive (Chi-square = 157.7,  $P \leq 0.001$ ).

**Table 1.** Internal consistency for knowledge and attitude regarding to the country

	Knowledge		Attitude	
	Number of People Under Study	Parameter R	Number of People Under Study	Parameter R
China	1534	0.415	1470	0.823
United States	597	0.621	572	0.845
Iran	840	0.41	575	0.881

**Table 2.** The average number of knowledge regarding to tobacco use among students (both men and women)

Country	Male participants			Female participants			Total		
	Mean	SD	Number	Mean	SD	Number	Mean	SD	Number
Iran	6.87	1.87	387	7.10	1.64	366	6.97	1.77	753
United States	8.32	1.78	221	8.58	1.35	352	8.76	1.98	597
China	6.97	1.79	872	7.52	1.56	581	6.84	1.79	1354
	P = 0.28			P = 0.96			P < 0.001		

Comparing 45.7% of American and 50.2% of Iranian students with 23.6% of Chinese college students, American and Iranian students put much more effort to stop smoking. The Chinese have not tried so much in giving up smoking. This study has been very impressive relatively. (Chi-square=157.7,  $P \leq 0.001$ ). More details about patterns and behavior of smoking are shown in Table 5.

## DISCUSSION

This survey has discussed the tendency toward smoking addiction among the students and their perception of this behavior and its outcome among the students in Iran, the USA, and China.

In this study students were divided in two groups of men and women. The knowledge and perception of each sex in one country and also between the three countries was carefully compared and evaluated. One of the problems the researchers are faced in this kind of survey is that students of the countries are of different cultures.<sup>11,12</sup> So, we cannot expect that the students studied in these three countries give a relatively appropriate result. In the case of representation, participants should be carefully chosen and the results must be studied with almost care.

There is also another criticism raised in this form of survey. Since the questionnaires used in the three countries are the same and they are originally written in English, when being translated to Persian and Chinese the cultural differences might cause some problems.

The young people studied in Iran were all medical students, so there is a great possibility that their understanding of case and also their recognition of the harmful effects of smoking

cigarettes might be much better than the students of other majors.

This questionnaire has already been used in America and China.<sup>7,8</sup> In case of Iran, we were trying to translate it in to Persian in a way that somehow agrees with our culture, but the problem still exists.

The original questionnaire is in American English prepared by an Iranian Professor (Dr Torabi, Chancellor's Professor, applied Health Science Department, Indiana University, USA).<sup>10</sup> We have already coordinated with him concerning the translation of the questionnaire.

One of the changes that we made in Persian version was adding waterpipe smoking to the text.

This survey showed that male students in all stages of age and in all three countries smoke more than women.<sup>13</sup> Among the smoking products, cigarette is of high consumption. After that, in Iran waterpipe is very popular. Overall, beside cigarettes, cigars and pipes have had more consumers during the last year in all countries.<sup>7,8</sup>

Fortunately, chewing tobacco (being normal in western countries) is still unknown in our country.<sup>14</sup> A very few people use this kind of tobacco. So, the whole survey shows that the number of male students smoking tobacco products is much higher than women.

Studying carefully the true responses of students to the questions concerning the knowledge, reveals that women are little more concerned. The survey also shows that American students are more knowledgeable compared to Iranian and Chinese students. (Knowledgeable college students are about 8.70%, in America, 6.97% in Iran and finally 6.84% in China).

**Table 3.** The average number of attitude regarding to tobacco use among students (both men and women)

Country	Male participants			Female participants			Total		
	Mean	SD	Number	Mean	SD	Number	Mean	SD	Number
Iran	75.43	11.45	403	81.92	9.94	431	87.85	11.16	834
United States	63.73	10.45	223	66.84	9.82	365	65.66	10.17	588
China	64.36	11.77	922	69.49	9.68	606	66.4	11.27	1528
	P < 0.001			P < 0.001			P < 0.001		

**Table 4.** The age of first cigarette smoking among students (both men and women)

(Years)	Iran	United States	China
13 or below	20.1	17.9	37.6
14 or 15	17.2	22.5	14.7
16 or 17	9.1	35.4	14.3
18 or 19	26.6	19.4	17.1
27 or more	27	4.8	16.3

Significant difference found between age groups in the three countries ( $P < 0.01$ )

These varieties might be the result of differences between the system of education and the policies that Americans have been following.<sup>12</sup> However, there are no noticeable differences regarding the meaningful perception in all three countries.

Regarding the answers given by the students about their attitudes and perception, the survey showed that women's concern about smoking was more than men that is very important and meaningful according to the statistical analysis. The perception of Iranian men and women was more than the same group of people in the United States of America and China.<sup>11,12</sup> The total percentage of perception among Iranian college students is 87.85%, comparing to 65.60% in America and 64.4% in China.

Iranian women's attitude toward smoking depends on the cultural condition and the government policies.<sup>14</sup> That is why women in Iran smoke much less (especially in public) compared

to women in China. Regarding the cultural condition in China women are much more comfortable toward smoking in both outdoors and indoors.<sup>15</sup> Any way in all countries the consumption of cigarettes is important and statistically meaningful ( $P < 0.001$ ).

Iranian and American students are trying harder to give up smoking compared to Chinese. So, among these countries giving up cigarette smoking is statistically significant ( $P < 0.001$ ).

## CONCLUSION

The current survey was planned to provide more information about the motives that provide certain conditions to start smoking. Regarding the proved dangers of smoking and the results gained in the survey, important and crucial steps have been taken by the policy makers of the country to educate effectively and show the disastrous outcome of smoking all over the country. Also, it is important to mention the

**Table 5.** Pattern of tobacco use among students (both men and women)

Variable	Female participants			Male participants		
	Iran (n. 485)	United States (n. 371)	China (n. 609)	Iran (n. 458)	United States (n. 226)	China (n. 925)
Having the experience of smoking	17.3	76	14.5	53.5	80.5	71.1
Those who have been smoking in last year	9.3	62.3	4.1	40.1	63.3	51.9
Those who have been smoking in last month	5.2	42.9	1.5	31.6	48.2	37
Having the experience of using chewy tobacco	1.4	15.9	0.7	4.6	55.3	2.4
Having the experience of using chewy tobacco in last year	1.0	3.8	0.5	3.3	33.6	1.8
Having the experience of using chewy tobacco in last month	1.4	2.2	0.5	2.2	17.3	1.6
Having the experience of smoking cigar	2.7	39.1	1.2	24.6	71.2	12.1
Having the experience of smoking barge cigarette in last year	2.3	24.3	0.5	16.9	53.5	6
Having the experience of smoking barge cigarette in last month	1.6	6.5	0.3	7.7	24.3	2.6
Having the experience of using pipe	2.3	7.6	0.7	23.9	33.2	3.7
Having the experience of using waterpipe	14.4	-	-	48.2	-	-

fact that these kinds of surveys can submit valuable information to the health trainers, health policy makers, and ministry of health. In this way, the Health Ministry authorities can effectively understand the importance of using tobacco products and especially its cultural aspects. Therefore, it would enable them to think of a way which results in prevention or decrease of smoking in the country.

Furthermore, we suggest to add some credit hours about smoking in universities' educational curriculum.

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