Smoking in Ecuador: prevalence, knowledge, and attitudes

Judith K Ockene, David E Chiriboga, Juan Carolos Zevallos

Abstract

Objective – To evaluate the prevalence of, attitudes towards, and knowledge about cigarette smoking in Ecuador in 1991.

Design – Survey using in-person interviews; stratified and multiple regression analyses.

Subjects and setting – Eight hundred people (≥18 years old) representative of the adult populations in the cities of Quito and Guayaquil, Ecuador.

Main outcome measures – Smoking prevalence, daily cigarette consumption, reasons for smoking, desire to quit smoking, knowledge about the health effects of smoking.

Results – About a third of the population in the two major cities of Ecuador are cigarette smokers. Men are not only more likely to be smokers than women (45% vs 17%, respectively), but when they do smoke, they also smoke significantly more cigarettes per day (60% more) than women. Cigarette smoking appears to be more common among younger populations, and among more educated people. Housekeepers are significantly less likely to be smokers compared with people in other occupations. About 80% of smokers consume fewer than 10 cigarettes per day. In Quito, a 40% increase in the number of cigarettes smoked per day on weekdays compared with weekends suggests an effect of the environment on smoking patterns. About 60% of smokers stated their desire to quit smoking, and there was almost universal knowledge about the harmful effects of cigarette smoking on the health of active and passive smokers.

Conclusions – About a third of the population in the two major cities of Ecuador reported smoking cigarettes. Smoking is more common among men, those of younger age, and the more educated. The findings in this study should help the development of anti-smoking policies in Ecuador and other countries in the region.

(Tobacco Control 1996;5:121–126)

Keywords: Ecuador; smoking prevalence; health knowledge; attitudes

Introduction

Prevention and treatment of tobacco use have been targeted by the World Health Organisation as a priority in developing countries. However, such efforts are difficult because tobacco promoters have applied active marketing and economic pressures to these countries, which are enticed by increased revenues provided by tobacco use. Thus, tobacco consumption is decreasing by 1% per year in industrialised nations and increasing by about 2% per year in developing countries. Neither exact figures for the prevalence and degree of smoking among many Latin American countries are available, nor information about the knowledge and attitudes of their populations towards smoking. Without this information it is difficult to tailor smoking and health education, prevention and cessation interventions, and policy efforts to appropriate target populations in these countries.

Epidemiological and clinical data indicate that prevention and intervention activities with current smokers are necessary if smoking-related problems are to be reduced. Among Ecuador’s approximately 10 million inhabitants, the major causes of death are infectious and cardiovascular diseases. Little is known about smoking behaviour, smoking-related knowledge, and attitudes of Ecuadorian adults towards smoking. Two surveys that collected data about tobacco use in Ecuador have been reported in the scientific literature.

One of the reported surveys was conducted in 1988 jointly by the Mental Health Division of Ecuador’s Ministry of Health and the Our Youth Foundation (Fundación Nuestra Jóvenes). It used a structured interview to assess the prevalence of alcohol, tobacco, and other drug use in Ecuadorian populations. Fifty-four per cent of Ecuadorian men and women between the ages of 10 and 65 reported having “ever smoked”, and 13% reported being currently “addicted to” tobacco (defined as smoking more than 17 cigarettes per day).

However, rates of current smoking and gender-specific rates of smoking were not presented in this report.

The second survey, conducted by Latin American affiliates of the Gallup Organization for the American Cancer Society between December 1987 and March 1988, found that 27% of Ecuadorians 13 years old and older had smoked (39% of men and 16% of women). The prevalence of smoking was estimated at 30%, 26%, and 19% for the cities of Quito, Guayaquil, and Cuenca, respectively. Gender-specific rates were not reported by city. In addition, 34% had “ever smoked” (36%, 32%, and 34% for Quito, Guayaquil, and Cuenca, respectively). In this study, “ever-smoked” was defined as having smoked at least 100 cigarettes in one’s lifetime. Because the survey
A survey of smoking behaviour was conducted in eight Latin American cities in 1971 and 1972 by Joly and colleagues. Household interviews were conducted in each city among a probabilistic socioeconomically stratified sample of 1600 persons between the ages of 15 and 74 years. Ecuadorian cities were not included. In this survey about two and a half times as many men as women smoked, with the highest prevalence observed in the intermediate age group. The highest prevalence of male smokers was in La Plata, Argentina (58%) and the lowest in Lima, Peru (34%). The rates for women ranged from 26% in Caracas, Venezuela to 7% in Lima, Peru. As a basis for comparison, 42% of all men and 30% of all women in the US were smokers in 1971. Currently in Latin America and the Caribbean, data indicate the smoking rate to be about 37% for men and 20% for women.

Smoking-related mortality in Ecuador has been increasing rapidly during the past decade. To help policy makers formulate well-defined policies regarding cigarette smoking, and to plan anti-smoking programmes consistent with these policies, a reliable estimate of the current prevalence of smoking in urban communities and an assessment of Ecuadorians’ knowledge about and attitudes towards smoking are needed.

To our knowledge, no study has reported the smoking patterns by age, occupational status, and gender in Ecuadorian cities or the attitudes and beliefs related to smoking and health among Ecuadorian residents or residents of any Latin American country. Our study was carried out to meet those objectives.

Methods
A random sample of subjects was obtained, representative of both sexes 18 years of age and older, who were living in the two largest cities of Ecuador, Quito and Guayaquil. In each of the cities, all available demographic data and geographical charts were used to obtain an accurate sample, including slum areas.

People in each city tend to live in well-defined clusters according to their income. The cities were stratified by parish; each parish was identified by one (and only one) predefined socioeconomic level (stratum): high, medium, or low. Socioeconomic level was defined according to the subjects’ income, property ownership, and education.

The samples were selected systematically and proportionally to the estimated number of persons required in each stratum to reflect the composition of the target population, that is, responses were weighted to the target population to provide correct estimates of smoking. The number of persons selected in each city was 400, using a three-stage, by-cluster approach.

The sample was collected in three stages. In the first stage, each city was divided into parishes (which are considered the legal civil limits of the city). Each parish was assigned only one predefined socioeconomic stratum (high, middle, or low). During the second stage, six areas within each selected parish were assigned with a proportional number of subjects estimated from the last census. Finally, each household within an area was designed to have a constant selection rate (that is, the same chance of selection), and the number of households selected was proportional to the total number of persons in the city sample, that is, 400. Only one adult 18 years of age or older was interviewed in each household. This person was randomly selected from a list of all the adults present in the household.

An oral interview, conducted by trained local interviewers, was used to obtain the information. In each parish the survey was conducted by three trained teams. Three experienced supervisors oversaw the field activities.

In February 1991, a structured in-person survey, which included seven smoking-related questions (see Appendix), was conducted and used to obtain a reliable estimate of smoking in Quito and Guayaquil and to determine attitudes towards smoking. The survey also included items to assess age, gender, and occupational group. Occupational groups were divided into seven categories: students, housekeeping, private, own business, government, professional, and unemployed. Housekeeping refers to people who take care of their own home.

Smoking data separating weekdays (Monday to Thursday) from weekends (Friday to Sunday) were collected in an attempt to evaluate whether there was an effect of the environment—that is, workplace, home, or social gatherings—on smoking behaviour.

Differences in the distribution of selected baseline demographic characteristics and smoking prevalence among study participants were examined by the use of the $\chi^2$ test for discrete variables and 95% confidence intervals (CIs) for the geometrical mean in cigarettes smoked per day, given the skewness of the data distribution. In an attempt to determine the independence of the associations observed in the stratified analysis, a multiple regression analysis was performed using the SPSS statistical package, for each of the parameters evaluated in the study: smoking prevalence; number of cigarettes smoked per day; and differences in number of cigarettes smoked per day on weekdays versus weekends.

Results
The study consisted of a total sample of 800 people, 400 in Quito (about 1.5 million inhabitants) and 400 in Guayaquil (about 2 million inhabitants). Only five people in Quito and two in Guayaquil refused to answer the questions. The composition of the sample population in both cities reflects the composition of the general population of adults aged 18 years of age or older in terms of sex, age, occupation, and socioeconomic status. The general demographic characteristics of the surveyed population were similar in both cities (table 1). The overall reported prevalence of current smoking...
Table 1 Demographic characteristics for Quito and Guayaquil

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Quito (n=400)</th>
<th>Guayaquil (n=400)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>207 (52)</td>
<td>202 (51)</td>
<td>NS</td>
</tr>
<tr>
<td>Age in years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-27</td>
<td>128 (32)</td>
<td>120 (30)</td>
<td>NS</td>
</tr>
<tr>
<td>28-37</td>
<td>113 (28)</td>
<td>120 (30)</td>
<td>NS</td>
</tr>
<tr>
<td>38-52</td>
<td>79 (20)</td>
<td>80 (20)</td>
<td>NS</td>
</tr>
<tr>
<td>≥ 53</td>
<td>80 (20)</td>
<td>80 (20)</td>
<td>NS</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>10 (3)</td>
<td>18 (5)</td>
<td>NS</td>
</tr>
<tr>
<td>Student</td>
<td>52 (13)</td>
<td>38 (10)</td>
<td>NS</td>
</tr>
<tr>
<td>Housekeeping*</td>
<td>104 (26)</td>
<td>120 (30)</td>
<td>NS</td>
</tr>
<tr>
<td>Private employee</td>
<td>74 (19)</td>
<td>87 (22)</td>
<td>NS</td>
</tr>
<tr>
<td>Government worker</td>
<td>54 (14)</td>
<td>20 (5)</td>
<td>p &lt; 0.05</td>
</tr>
<tr>
<td>Own business</td>
<td>83 (21)</td>
<td>85 (21)</td>
<td>NS</td>
</tr>
<tr>
<td>Professional</td>
<td>23 (6)</td>
<td>32 (8)</td>
<td>NS</td>
</tr>
</tbody>
</table>

* Housekeeping refers to people who devote their time to taking care of their own home.
** Quito, the capital of the country, is the place where all of the central government offices are located and therefore consists of a larger proportion of government workers.
NS = not significant.

Table 2 Smoking prevalence by site, gender, age and occupation

<table>
<thead>
<tr>
<th>Category</th>
<th>Smoking prevalence (n %)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>249 (31.1)</td>
<td>NS</td>
</tr>
<tr>
<td>Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quito</td>
<td>114 (28.5)</td>
<td></td>
</tr>
<tr>
<td>Guayaquil</td>
<td>135 (33.8)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>71 (17.4)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Male</td>
<td>178 (45.5)</td>
<td></td>
</tr>
<tr>
<td>Age in years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-27</td>
<td>86 (34.7)</td>
<td></td>
</tr>
<tr>
<td>28-37</td>
<td>73 (31.3)</td>
<td></td>
</tr>
<tr>
<td>38-52</td>
<td>42 (26.4)</td>
<td>NS</td>
</tr>
<tr>
<td>≥ 53</td>
<td>48 (30.0)</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>12 (42.9)</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>33 (36.7)</td>
<td></td>
</tr>
<tr>
<td>Housekeeping</td>
<td>29 (12.9)</td>
<td></td>
</tr>
<tr>
<td>Private employee</td>
<td>67 (41.6)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Government worker</td>
<td>23 (31.1)</td>
<td></td>
</tr>
<tr>
<td>Own business</td>
<td>65 (37.5)</td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>22 (40.0)</td>
<td></td>
</tr>
</tbody>
</table>
NS = not significant.

Table 3 Smoking prevalence for women and men by site, age, and occupation

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Female (n %)</th>
<th>Male (n %)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>71 (17.4)</td>
<td>178 (45.5)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quito</td>
<td>35 (16.9)</td>
<td>79 (40.9)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Guayaquil</td>
<td>36 (17.8)</td>
<td>99 (50.0)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Age in years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-27</td>
<td>29 (22.8)</td>
<td>57 (47.1)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>28-37</td>
<td>20 (16.4)</td>
<td>53 (47.7)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>38-52</td>
<td>9 (11.3)</td>
<td>33 (41.8)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>≥ 53</td>
<td>13 (16.3)</td>
<td>35 (43.8)</td>
<td>p &lt; 0.001</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>0 (0.0)</td>
<td>12 (63.2)</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>Student</td>
<td>14 (32.6)</td>
<td>19 (40.9)</td>
<td>NS</td>
</tr>
<tr>
<td>Housekeeping</td>
<td>28 (12.8)</td>
<td>1 (20.0)</td>
<td>NS</td>
</tr>
<tr>
<td>Private employee</td>
<td>12 (24.5)</td>
<td>55 (49.1)</td>
<td>NS</td>
</tr>
<tr>
<td>Government workers</td>
<td>4 (17.4)</td>
<td>19 (37.3)</td>
<td>NS</td>
</tr>
<tr>
<td>Own business</td>
<td>5 (10.0)</td>
<td>38 (49.1)</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>Professional</td>
<td>8 (50.0)</td>
<td>14 (35.9)</td>
<td>NS</td>
</tr>
</tbody>
</table>
NS = not significant.

Women and female students, it was 50% and 32%, respectively (table 3).

For the data analysis by age group, the data were pooled into two categories, using 28 years of age as the cut-off point. Overall, younger women were significantly more likely to smoke than older women, and in Quito, older people were significantly less likely to smoke than their younger counterparts (table 4).

After stratifying the data by city, no significant differences were observed for the reported smoking prevalence across age groups, gender, or occupational groups (data not shown).

A multiple regression analysis model was developed including all the factors that appeared to be relevant after the stratified analysis. Gender and occupation were the only predictors for smoking status at the p < 0.05 value. Men were more likely to be smokers than women, and housekeepers were less likely to be smokers than people in other occupational groups, after controlling for all variables (city, age, gender, and occupation).

In terms of reasons for smoking, "pleasure" was reported as the motivation by almost half of the smokers (table 5). Heavy smokers (people who smoke 20 or more cigarettes per day) were significantly more likely to smoke for the pleasure than the rest of the smokers (74.1% vs...
46.0%, respectively; p<0.01). On the other hand, about 24% of the non-heavy smokers claimed that they “do not know why they smoke” or that they “just do (smoke)”. None of the heavy smokers answered “I don’t know why I smoke”.

About two-thirds of smokers stated that they wanted to stop smoking. However, heavy smokers were significantly more likely to state their desire to quit smoking than the rest of smokers (85.2% vs 64.4%, respectively; p<0.05), and students were significantly less likely to report that they wanted to stop than people in other occupations (48.5% vs 69.4%, respectively; p<0.05).

More than 95% of smokers were aware of the fact that cigarette smoking affects their health, and a similar percentage realised that cigarette smoking affects the health of people around them (table 5). Approximately 80% of smokers in the two cities smoke less than 10 cigarettes per day, and 50% of smokers smoke fewer than three cigarettes per day (table 6). The overall average number of cigarettes smoked per day (using the geometric mean, given the skewness of the data) was 3.5 (95% CI = 3.0 to 4.0). In the stratified analysis, men smoked a significantly higher number of cigarettes than women (60% more cigarettes per day). There were no significant differences in daily cigarette consumption across age groups, or between the two cities.

Professionals reported smoking significantly more cigarettes per day than students and those who worked for the government. However, none of the figures for daily cigarette consumption were significantly different from the overall average for the population.

Smokers who answered “I don’t know why” to the question “Why do you smoke?” smoked significantly fewer cigarettes per day (1.3 cigarettes per day; 95% CI = 1.0 to 1.6) than smokers who gave any other reasons for smoking. After multiple regression analysis, controlling for site, gender, age, occupational group, and attitudes and knowledge about smoking, smokers who answered “I don’t know why” or “I just do (smoke)” to the question “Why do you smoke?” had a lower daily cigarette consumption than smokers who gave other reasons, and males had a higher daily cigarette consumption than females (p<0.05).

Overall, there were no significant differences across groups in daily cigarette consumption on weekdays (3.0 cigarettes per day; 95% CI = 2.5 to 3.5) as opposed to weekends (3.4 cigarettes per day; 95% CI = 2.9 to 4.0). However, after stratified analysis, smokers in Quito were significantly more likely to increase their smoking rate during weekends by an average of 1.3 cigarettes per day (95% CI = 1.0 to 1.6).

This observation was confirmed by multiple regression analysis, controlling for site, gender, age, occupational group, and attitudes and knowledge about smoking.

### Discussion

The results of this study indicate that self-reported smoking prevalence in the two main cities of Ecuador is about 31%, and that the prevalence of smoking is more than twice as high among men than among women. These findings are consistent with reports from other countries of the region. The distribution of smoking prevalence in the two cities, across the different strata (age, gender, occupation), was very similar.

Housekeepers were significantly less likely to smoke than people in other occupations. This finding could be related to childcare—such as concerns about the exposure of children to cigarette smoke. It also could be related to time constraints, lack of money, or more concern about health. However, our study has limited data to explain this finding, and more research is needed to determine the nature of the association in order to use it to promote a smoke-free and healthier environment in households where smoking occurs.

In all of the groups surveyed, the distribution of daily cigarette consumption is skewed, as at least a third of all smokers smoke only one

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**Table 5 Smoking-related attitudes and knowledge of smokers (n=249)**

<table>
<thead>
<tr>
<th>Attitudes and knowledge</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why do you smoke cigarettes?</td>
<td></td>
</tr>
<tr>
<td>Boredom</td>
<td>17 (6.8)</td>
</tr>
<tr>
<td>Stress</td>
<td>27 (10.8)</td>
</tr>
<tr>
<td>I just do (smoke)</td>
<td>40 (16.1)</td>
</tr>
<tr>
<td>I don't know why</td>
<td>19 (7.6)</td>
</tr>
<tr>
<td>Pleasure</td>
<td>124 (49.8)</td>
</tr>
<tr>
<td>Other reasons</td>
<td>22 (8.8)</td>
</tr>
<tr>
<td>Do you want to quit smoking?</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>166 (66.7)</td>
</tr>
<tr>
<td>No</td>
<td>83 (33.3)</td>
</tr>
<tr>
<td>Does smoking affect your health?</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>240 (96.4)</td>
</tr>
<tr>
<td>No</td>
<td>9 (3.6)</td>
</tr>
<tr>
<td>Does smoking affect the health of people around the smoker?</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>229 (92.0)</td>
</tr>
<tr>
<td>No</td>
<td>20 (8.0)</td>
</tr>
</tbody>
</table>

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**Table 6 Number of cigarettes smoked per day in percentile groups, by gender, site, age, and occupation**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Geometric mean</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(95% CI)</td>
<td>25th</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>2.5 (1.9-3.2)</td>
<td>1.0</td>
</tr>
<tr>
<td>Male</td>
<td>4.0 (3.4-4.7)</td>
<td>1.4</td>
</tr>
<tr>
<td>Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quito</td>
<td>3.1 (2.6-3.8)</td>
<td>1.1</td>
</tr>
<tr>
<td>Guayaquil</td>
<td>3.8 (3.1-4.7)</td>
<td>1.0</td>
</tr>
<tr>
<td>Age in years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-27</td>
<td>3.1 (2.4-3.9)</td>
<td>1.0</td>
</tr>
<tr>
<td>28-37</td>
<td>3.9 (2.9-5.1)</td>
<td>1.1</td>
</tr>
<tr>
<td>38-52</td>
<td>5.2 (2.2-4.7)</td>
<td>1.0</td>
</tr>
<tr>
<td>≥53</td>
<td>4.0 (2.9-5.4)</td>
<td>1.6</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>3.2 (1.6-6.4)</td>
<td>1.0</td>
</tr>
<tr>
<td>Student</td>
<td>2.3 (1.7-3.2)</td>
<td>1.0</td>
</tr>
<tr>
<td>Housekeeping</td>
<td>2.9 (1.8-3.7)</td>
<td>1.0</td>
</tr>
<tr>
<td>Private employee</td>
<td>4.0 (3.0-5.4)</td>
<td>1.1</td>
</tr>
<tr>
<td>Government worker</td>
<td>2.6 (1.8-3.7)</td>
<td>1.0</td>
</tr>
<tr>
<td>Own business</td>
<td>3.8 (2.8-5.2)</td>
<td>1.0</td>
</tr>
<tr>
<td>Professional</td>
<td>5.9 (3.8-9.1)</td>
<td>2.4</td>
</tr>
</tbody>
</table>

* The geometric mean is obtained by applying a logarithmic transformation to the dataset, then obtaining the mean value for the logarithmic distribution, and, finally, applying the anti-log function to the value obtained.
cigarette per day, and about 80% smoke fewer
than 10 cigarettes per day. This is a finding
that has been described for other countries within
the region and could be related to the cost of
cigarettes. In Ecuador, for example, cigarettes
are sold by the pack and also by the unit.
Although cigarettes are more expensive when
sold by the unit, unit sales make cigarettes
more “affordable” for people who do not have
readily available cash, such as students and
working-class smokers.

Those who smoke a few cigarettes per day
have been called “chippers” (very light
smokers who regularly use tobacco without
developing dependence)8 or “occasional
smokers”.19-20 Chippers are considered to be at
a level at which there is little likelihood of
addiction to nicotine and therefore the stimu-
lus for smoking could be the sight of others
smoking, making them “social smokers”.6
However, Shiffman and colleagues8-21 reported
that “chippers” did not smoke a greater propor-
tion of cigarettes when others were
smoking, nor did they smoke less when alone.
The only significant effect of social setting was
that chippers were less likely to smoke in the
presence of others who were not smoking”.

Given that tobacco usage in Ecuador also
seems dependent on socioeconomic factors, as
has been pointed out for Latin America as a
whole,1 Ecuadorian smokers of fewer than 10
cigarettes per day may still be dependent
smokers and they may not necessarily fit the
definition of chippers proposed by Shiffman
and colleagues. Therefore, it may be difficult
for these smokers to stop using the few
cigarettes they do smoke.

Unfortunately, in our study, information to
determine the social parameters of smoking
was not collected, and neither was there a good
measure of addiction. The daily cigarette con-
sumption observed in our study and in other
countries of the region is lower than the daily
consumption reported by Hispanics in
industrialised countries. In the US, the average
number of cigarettes smoked per day by
Hispanic males and females smokers is 15.0 and
12.1, respectively.

To identify the characteristics related to
being a chipper versus an addicted smoker, we
placed smokers in two categories: “chippers”
and “heavy smokers” (20 or more cigarettes
per day). Initially, the cut-off point used for
chippers was the one proposed by Shiffman
and colleagues (less than 10 cigarettes per
day). However, 80% of the smokers were con-
sidered chippers by this definition. We
therefore used the median number of cigarettes
smoked per day as the cut-off point (2
cigarettes per day). Heavy smokers were more
likely than chippers to smoke for “pleasure”
and at the same time, were more likely to state
their desire to quit smoking. The latter might
be related to the fact that, as heavy smokers,
they would be more likely to have respiratory
symptoms than chippers as defined in this
study. Also, heavy smokers were less likely to
“not know why they smoke” or to say that they
smoke because “they just do”. The
associations found in our analyses were similar
with either of the two cut-off points for
chippers, but stronger when using the median
number of cigarettes smoked per day as the
cut-off point. Therefore, our chippers are simi-
lar to Shiffman’s in that there is no relationship
between smoking and mood, internal cues, or
reasons.

The data for weekdays (Monday to
Thursday) compared with weekends (Friday to
Sunday) did not show any overall significant
differences, except for an average increase of
1.3 cigarettes/day on the weekends compared
with weekdays in Quito. Although this number
does not seem to have clinical significance, it
represents a 40% increase in daily cigarette
consumption in Quito on weekends compared
with weekdays and as such it should prompt
further research to help identify triggers.

Different smoking patterns between week-
days and weekends in Quito suggest a strong
influence of the environment on smoking
behaviour. Smoking cigarettes could be
influenced by social events during weekends in
Quito, pushing a subgroup of smokers,
especially those who report smoking for
“pleasure”, to smoke more than usual. At the
same time, smoking related to stress in the
worksite would be reduced on weekends, and
smokers who are more concerned about smok-
ing in the presence of spouses and children
may lower consumption of cigarettes on week-
ends. These differences and possible
interactions in subgroups may offset each other
and merit more investigation.

Although not related to being a heavy
smoker, male gender among smokers was posi-
tively associated with an increased number of
cigarettes smoked per day. Men not only are
more likely than women to be smokers, but
once they do smoke, they smoke a significantly
higher number of cigarettes per day. A
tendency towards a higher prevalence of smok-
ing among younger people also was observed,
especially among younger women compared
with their older counterparts.

Smoking patterns in both cities, similar to
those reported in other countries of the region,
are different from current smoking patterns in
the US, where level of education is inversely
related to cigarette smoking. The smoking pat-
tern currently observed in Ecuador could re-
resent an early phase of the eventual growth of
the smoking diffusion process23-25 where smok-
ing still is considered socially desirable, or a
sign of social status. Smoking will continue to
gain more and more joiners, as seems to be the
case particularly for more educated women in
Ecuador.

Education is generally associated with higher
socioeconomic status and it would be
important to consider both factors in analysing
smoking prevalence patterns. In our study,
smokers who were professionals smoked a sig-
ificantly higher number of cigarettes than
smokers who worked for the government and
smokers who were students, which could be a
result of professionals having greater
disposable income. More research is needed to
study the relationship between smoking and
these factors.
One encouraging finding is that most of the smokers in Ecuador report being aware of the fact that cigarette smoking adversely affects their health and the health of those around them. This is an important step towards behavioural change among smokers.

The results of this study should prompt further efforts to develop policies in Ecuador and other Latin American countries to help establish norms for not smoking and a comprehensive strategy for smoking control. This strategy should include persistent messages to stop smoking (or not to start), continuously available support for not smoking provided through multiple channels in the community, and environmental incentives for non-smoking. Such a strategy also implies political involvement on the part of healthcare providers directed toward action. In addition, it requires dissemination of materials and adequate research to understand how best to carry out these efforts. In light of the increasing number of deaths attributable to smoking in Ecuador, an integrated and well-supported approach that is accessible to all is needed. Finally, it would be important to analyse the effectiveness of anti-smoking policies adopted in other countries—such as increases in tobacco excise taxes—to determine their usefulness in Ecuador and other developing countries.

We thank Marcelino Aguilar from Informe Confidencial for his help in carrying out the survey in Quito and Guayaquil.

1. US Department of Health and Human Services. Smoking and health in the Americas. Atlanta, Georgia: Centers for Disease Control, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1992. (DHHS Publication No (CDC) 92-8419.)

Appendix

Smoking-related questions in the survey

- Do you smoke cigarettes now? If yes:
  - How many cigarettes per day do you smoke from Monday to Thursday?
  - How many cigarettes per day do you smoke from Friday to Sunday?
- Would you like to quit smoking?
- Does smoking affect your health?
- Do you think that smoking affects the health of the people around you?
- Why do you smoke?