

CIGARETTE SMOKING IN LATIN AMERICA— A SURVEY OF EIGHT CITIES^{1,2}

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Smoking is an important cause of disease and death in Latin America, but relatively little is known about Latin American smoking patterns. The present article reports the basic results of a major investigation designed to shed light on this subject.

Introduction

Diseases related to smoking (cancer of the lung, cancer of the larynx, coronary heart disease, chronic bronchitis, emphysema, and others) are on the increase in Latin America. Indeed, the Inter-American Investigation of Mortality⁴ has shown that in the early 1960's such diseases accounted for some 20 per cent of the fatalities in 10 Latin American cities. Since then, a variety of indicators have suggested that the prevalence of cigarette smoking was reaching unusually high levels in many countries.

In view of this, a major study of cigarette smoking patterns in Latin America was planned and carried out. This work had the following objectives: (1) to obtain a reliable estimate of the prevalence of cigarette smoking in urban communities of Latin America, (2) to correlate cigarette smoking patterns with some morbidity features, (3) to gain an

insight into the attitudes and beliefs of the population regarding cigarette smoking and its relation to health, (4) to assist in formulation of well-defined policies on cigarette smoking by the participating countries, (5) to help in planning anti-smoking programs consonant with these policies, and (6) to provide baseline data for future evaluation of such programs.

The study was financed through the regular budget of the Pan American Health Organization and through grants provided by the United Nations Development Program, the American Cancer Society, the *Liga Paulista Contra el Cáncer*, the Peruvian Cancer Foundation, and the Anti-Cancer Society of Venezuela. The investigation also received support from the health authorities of the countries involved.

The present summary report broadly describes the methodology used, highlights the most important results, and presents the major conclusions of this study. A more detailed account, including city-by-city analysis of the data obtained, is provided in the full report of the investigation.

Methodology

City and sample selection. The need to assure adequate diversity of geographic, ethnic, and demographic characteristics was the guiding criterion for selecting the eight

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²This study was carried out with the collaboration of the following local co-investigators: Drs. Alfonso Arguelles N. (Mexico), Favio Arias Rojas (Venezuela), Euclides Ayres de Castilho (Brazil), Ricardo Galán Morera (Colombia), José Gálvez Brandón (Peru), Lionel Linares García (Guatemala), Naum Marchevsky (Argentina), and Aída de Pizzi (Chile).

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⁴See reference (1).

TABLE 1—Populations of the cities included in the survey.

City and country	Population at about the time of the survey
Bogotá, Colombia	2,500,000
Caracas, Venezuela	2,180,000
Guatemala City, Guatemala	980,000
La Plata, Argentina	380,000
Lima, Peru	3,300,000
Mexico City, Mexico	2,900,000
Santiago, Chile	2,600,000
São Paulo, Brazil	5,900,000

urban areas surveyed (see Table 1 and Figure 1). In each case, a probabilistic socio-economically stratified sample of about 1,600 persons was selected. This sample included members of both sexes 15–74 years of age. The size of the sample was based on an anticipated smoking prevalence of 50 per cent, with an acceptable standard error of 1.25 within 95 per cent confidence limits.

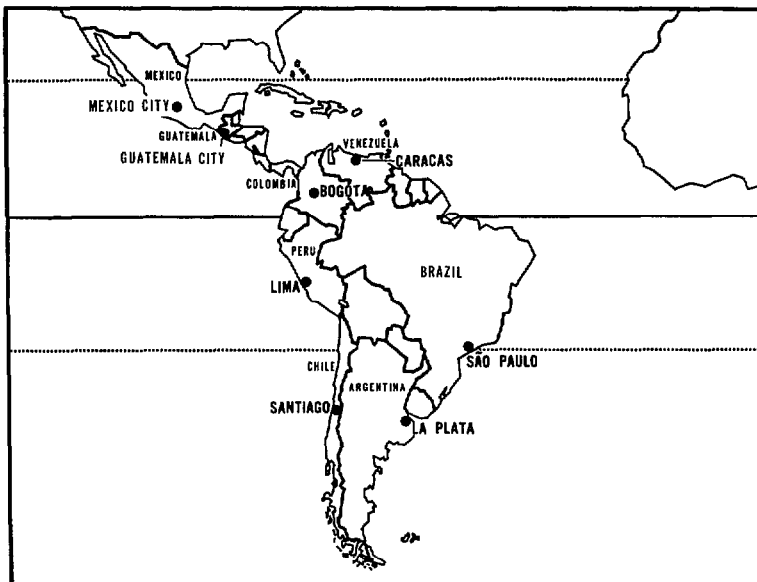
The questionnaire. To facilitate comparison, a survey form very like one used in similar studies carried out in the United

States in 1964, 1966, and 1970 was adopted (2). In addition, two other forms were used to collect information concerning cardio-respiratory symptoms, nonspecific morbidity, absenteeism, and decreased everyday activities—one of the forms being recommended by the World Health Organization (3) and the other by the National Center for Health Statistics of the United States Public Health Service (4).

Field and headquarters procedures. The responsibility for field activities was entrusted to local co-investigators supervised by the study's principal investigator. Selection of the household sample was finished in the third quarter of 1971 and the interviews were completed by mid-1972. Review, editing, coding, and analysis of the information was carried out at the central office in Washington, D.C.

Analytical methods. Only one person 15–74 years old was interviewed in each of the households included in the study. This person was chosen from a list of everyone present in the house, on which all those

FIGURE 1—Cities selected for the Latin American survey on cigarette smoking patterns (1971–1972).



who were identified as current or former smokers were, in effect, listed twice. This procedure made it twice as likely that current or former smokers, as opposed to those who had never smoked, would be selected.

To correct afterwards for this unequal probability of selection, a weighting factor was applied to each person interviewed, the size of the factor depending on the relation of the number of smokers (current and former) and never smokers interviewed to the number of smokers and never smokers in the household. This factor took household size, sex, and the interviewed person's particular smoking status into account.

In addition, smoking prevalence rates and various reported characteristics of the selected individuals were age-adjusted with reference to the total population of both sexes interviewed in all of the cities.

Interviews. Satisfactory interviews were obtained at 90 per cent of the addresses selected. Houses were found to be demolished, vacant, or not occupied by any identifiable family group at 5.8 per cent of the addresses; occupants refused to be interviewed at 2.1 per cent of the addresses; and adequate interviews could not be completed for a variety of other reasons at the remaining 2.1 per cent. The observed age and sex distributions of residents in the 15-74 age range at the selected addresses correlated very closely with distributions provided by the available census data in the eight cities.

The final weighted sample was equivalent to 5,608 men and 6,774 women. Of the men, 2,626 identified themselves as current cigarette smokers, 497 as former smokers, and 2,485 as never smokers.⁵ Among the women, the

⁵ "Never" smokers were separated from former smokers by asking "Have you ever smoked cigarettes?" Those answering yes were asked "Have you smoked five packs (100 cigarettes) in your lifetime?" Those giving a negative reply to either question were classed as never smokers.

The smokers remaining were then asked "Do you now smoke cigarettes?" Those who said yes were classed as current smokers and those who said no as former smokers.

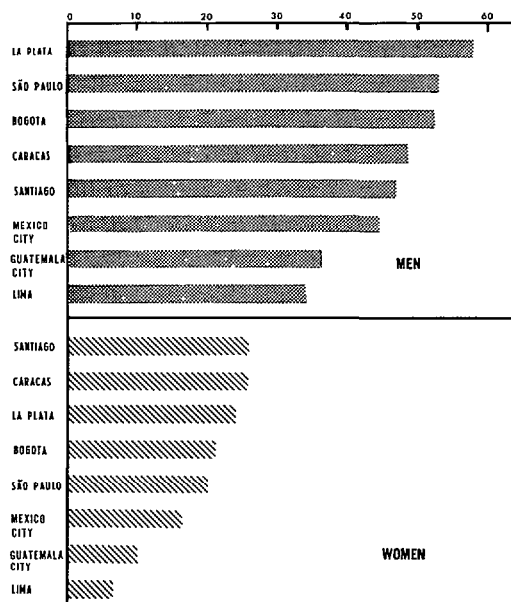
respective numbers were 1,220 current smokers, 201 former smokers, and 5,353 never smokers.

Results

Prevalence of Cigarette Smoking

As shown in Figure 2, the prevalence of current cigarette smoking among men was found to be highest in the cities of La Plata (58 per cent), São Paulo (54 per cent), and Bogotá (52 per cent). Intermediate prevalences were observed in Caracas (49 per cent), Santiago (47 per cent), and Mexico City (45 per cent); and relatively low prevalences were found in Guatemala City (36 per cent) and Lima (34 per cent). With regard to women, about one in four identified themselves as current cigarette smokers in Caracas (26 per cent), Santiago (26 per cent), and La Plata (24 per cent); this prevalence changed to about one in five in

FIGURE 2—Age-adjusted percentages of current smokers 15-74 years old in eight Latin American cities.



Bogotá (21 per cent) and São Paulo (20 per cent), and was still smaller in Mexico City (17 per cent), Guatemala City (10 per cent), and Lima (7 per cent).

Overall, 45 per cent of the men interviewed were found to be current cigarette smokers, as opposed to 18 per cent of the women. This difference in male and female smoking patterns appears considerably greater than that in the United States, where the respective prevalences of cigarette smoking among men and women were found to be 42 and 30 per cent in 1970 (2).

In the 25-54 year age range, where the higher prevalences of current smokers were found, the average prevalences of smoking among men and women were, respectively, 50 and 20 per cent (see Figure 3). Also, the proportion of those who had given up smoking (former smokers) was found to rise with age, this rise being greater for men than for women. That is, 2.8 per cent of the men 15 to 25 years of age were former smokers, but for those 55 to 75 the figure was 20.5 per cent. Among women in these two age groups the respective percentages were 1.4 and 4.3 per cent.

Other Forms of Smoking

Cigars and pipes are seldom smoked in Latin America; in fact, among the men interviewed, only 1.6 per cent smoked cigars and only 1 per cent smoked pipes. This picture contrasts markedly with that seen in the United States, where the corresponding rates were 21 and 18 per cent in 1970 (2).

Occupations

The subjects' occupations were coded according to a classification scheme used by the International Labor Organization (5), and these occupations in turn were grouped into seven broad categories (see Table 2). Among men, the salient features observed were as follows: There were (a) a larger proportion of administrators among the current and former smokers than among the never smokers, (b) a larger proportion of professionals among former smokers than among current and never smokers, and (c) a markedly smaller proportion of students among current and former smokers than

FIGURE 3—Percentages of current and former smokers in eight Latin American cities, by age group and sex.

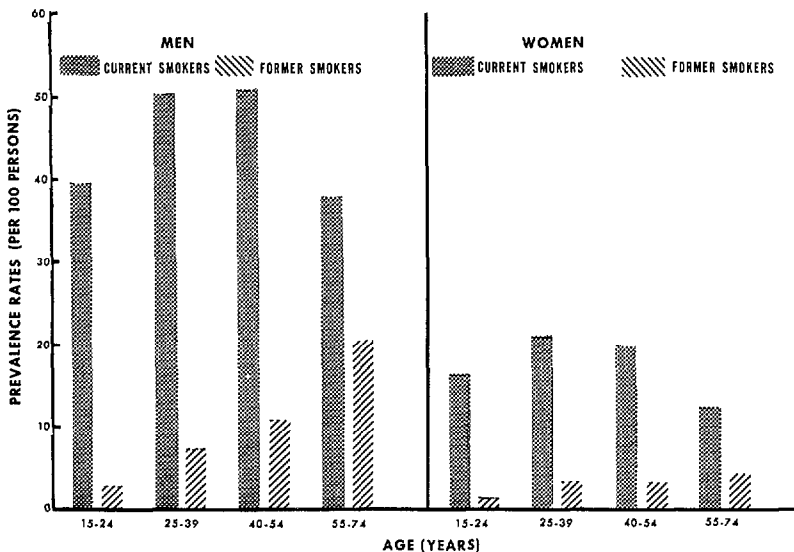


TABLE 2—Occupations of subjects interviewed in eight Latin American cities; data adjusted for age and grouped according to the subjects' sex and smoking status.

Occupation	Men			Women		
	Current smokers (%)	Former smokers (%)	Never smokers (%)	Current smokers (%)	Former smokers (%)	Never smokers (%)
Administrators	13.4	12.4	10.1	9.9	9.8	5.2
Professionals	12.1	15.6	11.7	8.1	7.2	5.4
Merchants and sales personnel	13.9	14.5	13.5	3.2	4.0	4.2
Housewives	—	—	—	51.4	57.0	57.3
Blue and white collar workers	44.1	44.9	42.7	15.9	14.9	16.5
Retired or unemployed persons	3.2	3.3	3.1	1.5	0.9	1.2
Students	11.6	7.5	16.9	9.2	6.1	9.6
Unspecified	1.7	1.9	2.0	0.8	—	0.6
Total	100	100	100	100	100	100

among never smokers. With regard to women, there were disproportionately large numbers of administrators and professionals among the current and former smokers, a relatively small proportion of students among former smokers, and a relatively small proportion of housewives among current smokers.

Standardized ratios (age-adjusted for both smoking status and occupational group) indicate that workers (white and blue collar workers combined) had about the same likelihood of being current or former smokers

as did members of the population at large (see Table 3). But they also show that, irrespective of age, both male and female students had relatively little tendency to be former smokers, and that relatively few male students were current smokers. In addition, they support the finding that housewives were in general less inclined to be current smokers than other women.

Education

In contrast to the foregoing findings among the students interviewed, disproportionately large numbers of current and former smokers were found among subjects who had received a relatively high degree of education. This tendency was even more striking in women than in men. Standardized smoking ratios for the various educational groups indicated that the higher the subjects' educational status, the more likely that the women would be current or former smokers, and that the men would be former smokers (see Table 4).

TABLE 3—Standardized ratios comparing the percentages of current and former smokers among workers, students, and housewives to the percentages among the whole survey population.

	Current smokers	Former smokers
<i>Men:</i>		
Workers	0.98	0.97
Students	0.81	0.52
<i>Women:</i>		
Workers	0.96	0.96
Students	0.97	0.65
Housewives	0.92	0.98

TABLE 4—Education of the subjects; data adjusted for age and grouped according to the subjects' sex and smoking status. The standardized ratios show the relative proportions of current and former smokers in the various educational groups.^a

	Men			Women		
	Current smokers	Former smokers	Never smokers	Current smokers	Former smokers	Never smokers
<i>% current and former smokers with:</i>						
No schooling	3.9	3.6	3.3	8.1	8.9	9.9
Grammar school	41.0	41.6	43.1	40.9	42.9	51.3
High school	35.4	35.3	36.5	36.2	32.4	30.5
University	19.4	19.4	16.5	14.7	15.3	8.0
<i>Standardized ratios of current and former smokers with:</i>						
No schooling	1.10	0.70	—	0.81	0.93	—
Grammar school	0.97	1.02	—	0.83	0.84	—
High school	1.00	0.88	—	1.15	1.14	—
University	1.06	1.17	—	1.57	1.58	—

^aThe figures reflect the highest educational level reached (but not necessarily completed) by each subject.

Age When Smoking Started

Data about the age of onset of cigarette smoking showed that in most cases the habit became established early (see Table 5). In effect, one-third of the current male smokers (33 per cent) began smoking regularly before age 16, almost three-fourths (74 per cent) started before age 20, and over nine-tenths (93 per cent) started before age 25. Male former smokers began even earlier, the respective proportions being 38 per cent by age 16, 80 per cent by age 20, and 95 per cent by age 25. Female subjects tended to be

less precocious. Overall, 16 per cent of the current female smokers and 12 per cent of the former female smokers did not begin smoking before their thirtieth birthday.

Types of Tobacco Used

A significant fraction of the cigarettes consumed in Latin America are prepared with a dark, locally produced tobacco which is more alkaline than the lighter-colored tobaccos produced locally or imported from abroad, and which has a higher concentration of nicotine and phenols. However, this

TABLE 5—Age-adjusted percentages showing when regular smoking first began, by sex and smoking status.

Age when regular smoking began (in years)	Men		Women	
	Current smokers (%)	Former smokers (%)	Current smokers (%)	Former smokers (%)
5-12	7.9	8.2	4.3	4.7
13-15	25.2	29.9	18.3	15.7
16-19	40.9	41.9	31.0	34.8
20-24	18.6	14.9	21.2	21.1
25-29	3.2	2.9	7.8	9.2
≥30	2.9	1.6	15.6	12.1
Unspecified	1.2	0.7	1.7	2.5
Total	100	100	100	100

TABLE 6—Smoking practices of current and former smokers interviewed, including average daily cigarette consumption, tendency to inhale, type of tobacco used, and predilection for filter or nonfilter cigarettes.

Cigarette smokers	Men		Women	
	Current smokers (%)	Former smokers (%)	Current smokers (%)	Former smokers (%)
<i>Tobacco smoked:</i>				
Light	71.0	65.2	79.1	72.8
Dark	21.2	23.1	16.1	16.3
Both types	0.8	10.5	0.1	9.3
Unspecified	6.9	1.2	4.6	1.6
<i>Smokers of filter vs. nonfilter cigarettes:</i>				
Smoke only filter cigarettes	79.2	45.7	85.2	58.8
Smoke only nonfilter cigarettes	18.8	38.9	13.0	25.7
Unspecified	2.1	15.5	1.9	15.5
<i>Average No. of cigarettes smoked per day:</i>				
1-9	42.3	41.3	59.0	54.8
10-19	27.7	22.0	25.4	22.1
≥20	28.9	32.7	14.8	17.8
Unspecified	1.0	4.0	0.7	5.3
<i>Degree of inhalation:</i>				
Into the mouth only	14.4	18.4	23.7	25.6
Into the throat	29.2	24.2	36.1	31.8
Into the chest	56.5	57.0	40.7	42.5

dark tobacco is actually the standard fare of relatively few current smokers (21 per cent of the men interviewed and 16 per cent of the women), and in fact most smokers use only the lighter tobacco (see Table 6). Among the men interviewed, former smokers were slightly more inclined to smoke dark tobacco than were current smokers.

Filter vs. Nonfilter Cigarettes

The vast majority of current smokers showed a preference for filter-tip cigarettes; in fact, 79 per cent of the men and 85 per cent of the women said they smoked only this type of cigarette. The proportion of former smokers favoring filter-tip cigarettes was noticeably smaller, with 46 per cent of the men and 59 per cent of the women saying they had smoked only that kind.

Most brands of light-tobacco cigarettes

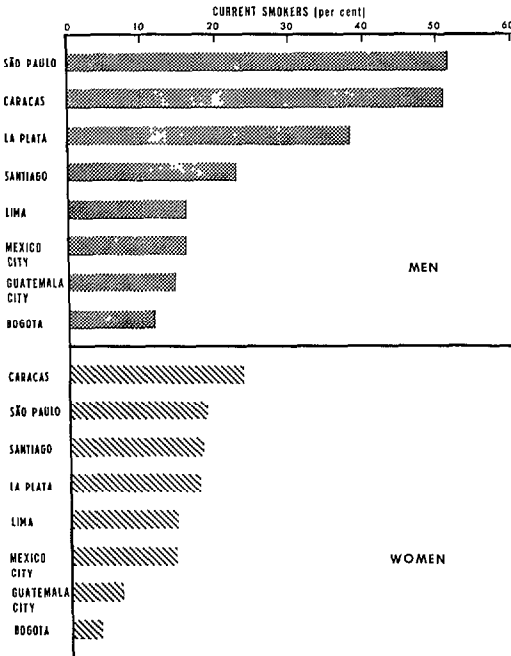
have filters and most dark tobacco brands do not. Therefore, it is likely that a smoker's preference for filter or nonfilter cigarettes will restrict his choice of tobacco somewhat, and vice versa.

Comparing 1970 U.S. figures with those from the present survey, it appears that fewer U.S. men (68 per cent of the current smokers and 35 per cent of the former smokers) were smoking only filter cigarettes, but that about the same proportions of women (83 per cent of the current smokers and 63 per cent of the former smokers) were doing so (2).

Number of Cigarettes Smoked Per Day

Among the current smokers interviewed, 29 per cent of the men and 15 per cent of the women said that they consumed 20 or more cigarettes daily (see Figure 4). These

FIGURE 4—Age-adjusted percentages of heavy current smokers (20 cigarettes a day or more) in eight Latin American cities, by sex.



reported proportions were somewhat larger among former smokers (33 per cent of the men and 18 per cent of the women).

Overall, the prevalence of heavy smoking appeared somewhat lower than in the United States, where the forementioned 1970 study showed that slightly higher percentages of current smokers (31 per cent of the men, 17 per cent of the women) and former smokers (38 per cent of the men, 19 per cent of the women) were consuming 25 or more cigarettes per day (2). However, these U.S. figures were notably exceeded by prevalences of heavy smoking among current male smokers in three Latin American cities—La Plata (38 per cent), Caracas (51 per cent), and São Paulo (52 per cent), as shown in Figure 4.

With regard to the eight cities covered, a positive correlation was found between the prevalence of smoking and the frequency of heavy smoking. The only significant exception was Bogotá, which had the lowest percent-

age of heavy smokers even though it ranked third on the scale of smoking prevalence.

Cigarette Smoke Inhalation

Overall, the degree of inhaling appears less marked than in the United States. Among the current smokers interviewed, 57 per cent of the men and 41 per cent of the women said they inhaled smoke into the chest (see Table 6). Comparable 1970 figures for the United States are 68 and 46 per cent (2).

Medical Implications

The survey was not designed to obtain data on the actual incidence of smoking-related diseases and deaths. Nevertheless, it was possible to gather data on several cardio-respiratory complaints (cough, phlegm, and dyspnea) often associated with smoking (see Table 7). It was also possible to find the number of days per year that subjects were absent from work or were confined to their beds (see Table 8). These data, by themselves, do not provide a complete or comprehensive assessment of the health implications of smoking in the areas surveyed. But it is hoped that, in combination with appropriate morbidity and mortality data, they will contribute to an improved understanding of these implications.

Cardiorespiratory symptoms. Both current and former smokers complained of cough and phlegm more often than never smokers (see Table 7). These symptoms were a good deal more common among current smokers than among former smokers, and were much more common among men than among women.

Moreover, compared to never smokers complaining of cough and phlegm, a disproportionate share of the affected current smokers experienced severe symptoms. For example, early-morning cough was reported 2.4 times more often by current male smokers than by former male smokers, but

HEALTH EFFECTS OF THE SMOKING HABIT¹

A recent World Health Organization report² called attention to a number of points relating to the effects of smoking on health. Those cited included the following:

- The worldwide rise in cancer mortality continues unabated in those countries where cigarette smoking has been widespread.
- In women, whose cigarette consumption has been rising rapidly over the past 30 years, lung cancer mortality continues to rise at an increasing rate.
- It has been confirmed that smokers of filter-tipped cigarettes with relatively low tar delivery experience a reduced risk of lung cancer, as compared with those who continue to smoke nonfilter cigarettes.
- Mortality among Japanese cigarette smokers, both male and female, is some 22 per cent higher than among nonsmokers. The risk is increased by increasing cigarette consumption and by inhalation of cigarette smoke.
- A striking reduction of lung cancer mortality among British doctors, the majority of whom are nonsmokers or former smokers, has been documented.
- Research evidence published over the past few years strengthens the view, previously advanced with reservation, that cigarette smoking is a major risk factor in both fatal and nonfatal myocardial infarction.
- Carbon monoxide plays an important part in the mechanisms whereby smoking promotes ischaemic heart disease. The amount of carbon monoxide produced increases progressively as a cigarette is smoked down to the nub.
- In young people, ischaemic disease of the legs (thromboangiitis obliterans) causing intermittent claudication appears to be confined almost exclusively to those who smoke.
- Several recent studies carried out in various countries have confirmed that the incidence of gastroduodenal ulcer is roughly two times greater among smokers than among nonsmokers.
- The main effects of maternal smoking are to retard fetal growth and increase the risk of perinatal death; but there is some evidence that as late as age seven the children of mothers who smoked during pregnancy may still be slightly smaller and show slightly lower levels of achievement than other children.
- Several studies have shown that children of parents who smoke are more liable to experience chest illnesses than children of parents who do not smoke.
- The nonsmoker exposed to the side-stream and main-stream smoke of smokers in enclosed, ill-ventilated spaces, such as cars and small offices, may be exposed to harmful concentrations of smoke.
- In some communities, the traditional way of smoking tobacco—by bubbling the smoke through a pot of water—may be less damaging than cigarette smoking. On the other hand, some other ways of using tobacco, e.g., chewing, may produce other harmful manifestations, such as cancer of the oral cavity.
- Pipe and cigar smokers, who do not usually inhale, are exposed to lower health risks than cigarette smokers who usually inhale.
- In certain developed countries, the publication of scientific findings on the effects of smoking seems to have reduced cigarette use to some extent. On the other hand, the consumption in developing countries is rapidly increasing.
- Most countries have not yet adopted any legislative measures to limit smoking, while others have taken measures relating mainly to cigarette advertising. Of the 100 countries for which WHO has information, some 70 have no legislation whatever aimed at controlling the promotion or use of cigarettes.

¹*Excerpted from In Point of Fact (No. 1, 1975), World Health Organization, Geneva, 1975.*

²*World Health Organization, Smoking and Its Effects on Health: Report of a WHO Expert Committee, Geneva, 1975 (WHO Technical Report Series, No. 568).*

TABLE 7—Cardiorespiratory symptoms (cough, phlegm, and dyspnea) reported by the subjects interviewed; data adjusted for age and grouped according to the subjects' sex and smoking status.

	Men			Women		
	Current smokers (%)	Former smokers (%)	Never smokers (%)	Current smokers (%)	Former smokers (%)	Never smokers (%)
<i>Cough usual in some season, as follows:^a</i>						
Early in the morning	30.6	21.5	12.7	21.4	13.9	13.6
During the daytime or at night	20.6	14.6	7.4	16.8	12.1	8.6
For about 3 months per year	12.5	12.5	3.3	9.7	8.3	3.9
<i>Phlegm usual in some season, as follows:^a</i>						
Early in the morning	25.4	25.4	10.9	15.0	12.7	9.1
During the daytime or at night	15.0	14.9	6.5	10.3	10.7	5.6
For about 3 months per year	14.9	14.8	4.8	8.6	9.1	3.7
<i>An unusual period of cough and phlegm lasting 3 or more weeks experienced within the past 3 years</i>						
	13.4	15.8	4.8	13.0	8.3	6.2
<i>Shortness of breath (dyspnea) experienced as follows:</i>						
While hurrying or walking up-hill	20.4	18.5	13.3	23.9	22.7	20.2
While walking with people of own age	6.0	8.1	3.6	9.5	10.0	5.6
While walking at own pace on level ground	2.4	2.9	1.5	4.5	4.9	2.6

^aThe subjects were asked "Do you usually cough early in the morning sometime during the year?" and "Do you usually cough during the daytime or at night sometime during the year?" Those answering yes to either question were asked "Do you cough like that for at least 3 months during the year?" The same series of questions was asked concerning phlegm.

TABLE 8—Days current smokers and never smokers spent in bed or absent from work, per person-year, by sex.

	Men			Women		
	Current smokers	Never smokers	Ratio of current smokers to never smokers	Current smokers	Never smokers	Ratio of current smokers to never smokers
<i>Average No. of days spent in bed per year:</i>						
15-74 age group	4.9	4.5	1.09	8.2	7.9	1.04
40-74 age group	5.9	3.4	1.74	11.6	9.5	1.22
<i>Average No. of work-days lost per year:</i>						
15-74 age group	8.3	6.6	1.26	10.1	7.8	1.29
40-74 age group	10.2	8.1	1.26	13.5	9.8	1.38

cough symptoms lasting at least three months per year were reported 3.8 times more often. Similar trends were observed for complaints of phlegm in males and for complaints of both cough and phlegm in females. Current smokers reported experiencing dyspnea more often than nonsmokers, but the contrast was not as striking as in the case of the other two symptoms.

Overall, the frequency of almost every symptom was found to increase with the depth of inhalation, the length of time smoking, the average daily number of cigarettes smoked, the use of dark tobacco, and the consumption of nonfilter cigarettes.

Restriction of normal activities. Current smokers reported staying in bed more often than never smokers as a result of sickness, accident, or injury (see Table 8). This trend was especially pronounced among men in the 40-74 age range, current smokers being found to spend 1.74 as much time confined to bed, on the average, as nonsmokers. In general, the findings for men shown in the table are very similar to 1965 figures for the United States (6), which indicated that current smokers over age 16 spent 1.08 times as many days in bed as nonsmokers, but that current smokers in the 45-64 age range were confined to bed 1.39 times as long as nonsmokers. (The average days in bed in the four respective U.S. cases were 5.7, 5.3, 6.4, and 4.6 days per annum).

Current smokers also spent more time absent from work than nonsmokers, the average annual absences being 1.26 times as great for male smokers and 1.29 times as great for female smokers (see Table 8). Comparable 1965 figures for the United States were 1.39 among men and 1.17 among women (6).

Not counting days confined to bed or absent from work or school, current smokers were found to restrict their usual activities more than never smokers. On the average, the days of restricted activity (for reasons of sickness, injury, or accident) reported for male current smokers exceeded the days reported for never smokers by nearly 60 per cent (the actual ratio was 1.57 days to 1). On the other hand, female current smokers did not report more days of restricted activity than never smokers. Comparable United States figures show roughly the same pattern for women, but for men the difference between current smokers and never smokers is less (the ratio being 1.16 days to 1).

Motivating Factors

The questionnaire listed a series of possible reasons as to why the habit of smoking cigarettes was or was not acquired and why in some cases it was later given up (see Table 9). Imitation of peer group behavior seemed to be the predominant reason for starting

TABLE 9—Reasons cited by current and former smokers for starting to smoke regularly (age-adjusted data).

Reason(s) for starting to smoke regularly ^a	Men		Women	
	Current smokers (%)	Former smokers (%)	Current smokers (%)	Former smokers (%)
Smoking by close relatives	21.1	12.3	28.6	24.3
Imitation of peer group	78.7	83.0	64.4	74.3
Sense of increased masculinity	22.1	29.0	—	—
Sense of greater personal attractiveness	12.4	16.3	10.8	14.1
Desire to keep weight down	2.1	3.2	7.0	7.4

^aTotals exceed 100% because each person was allowed to choose more than one reason.

to smoke, with 80 per cent of the men and 70 per cent of the women citing this reason. The example set by close relatives appeared to play a much less significant role, especially among men. A feeling of heightened masculinity was cited by about a quarter of the men, while an appreciably smaller proportion of men and women stated that they began smoking because they felt their personal attractiveness was enhanced.

"Feeling sick" when smoking cigarettes was the reason most often cited by former smokers (62 per cent of the men and 49 per cent of the women) for giving up the habit (see Table 10). Medical advice played a primary role in 27 per cent of the cases; in a similar vein, the belief that cigarette smoking decreased the subject's capacity for usual activities was cited as a reason by 32 per cent of the men and 19 per cent of the women. Family pressures and the excessive cost of cigarettes appear to have played very secondary roles in most cases.

TABLE 10—Reasons cited by nonsmokers for never smoking regularly, and reasons cited by former smokers for giving up smoking.

	Men (%)	Women (%)
<i>Reasons for giving up smoking^a</i>		
Family influence	12.0	15.1
Medical advice	27.3	27.0
Felt sick when smoking	62.5	49.4
Reduced capacity for work, sports, or other activities	32.2	19.1
Expense	11.2	10.4
<i>Reasons for never having smoked^a</i>		
Family influence	17.9	19.6
Health	20.9	15.6
Expense	8.4	7.6
Believed it unfeminine	—	30.1
Feared loss of work capacity	12.0	8.5
Feared loss of athletic capacity	14.4	5.4
Dislike of smoking	74.3	80.1

^aTotals exceed 100% because each person was allowed to choose more than one reason.

Three-fourths of those who had never smoked regularly asserted that they rejected cigarettes simply because they did not like smoking; health reasons and family influence were cited by relatively small percentages of nonsmokers (see Table 10). Nearly a third of the nonsmoking women interviewed said they did not take up smoking because they felt the practice was unfeminine.

Some Theoretical Considerations

Cigarette smoking can be viewed as having a social history with its own dynamic processes of "diffusion" and "maintenance." Diffusion, as defined here, means spread of the smoking habit within a particular group of people. When referring to age-phased progressive acquisition of the habit by members of a generation, we call it "generation" or "cohort" diffusion; and when referring to acquisition by members of a community over time we term it "community" diffusion. Maintenance, in this context, means continuance of cigarette smoking. Again, we can either regard the habit as being maintained among the individuals of a generation ("generation" or "cohort" maintenance) or among the members of a community ("community" maintenance) over time. Both the diffusion and maintenance processes begin with initiation of the smoking habit, but diffusion drops off as stabilization levels are reached, while a greater or lesser degree of maintenance continues indefinitely.

For purposes of measuring generation or cohort diffusion, the most precise indicator would be the changing incidence of smoking in successive specific age groups. That is,

$$\frac{\text{No. starting to smoke in age-range X}}{\text{Population in age-range X}} \times 100 = \begin{matrix} \% \text{diffusion} \\ \text{in age-} \\ \text{range X} \end{matrix}$$

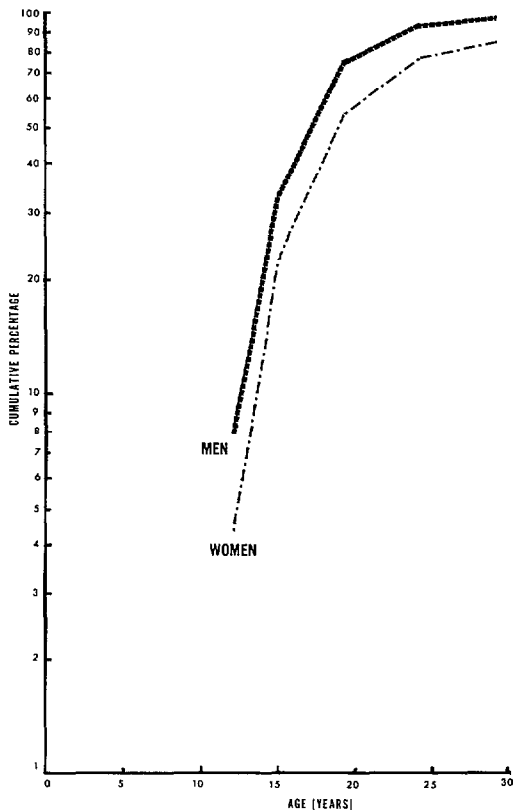
Since such information is not now available, one is forced to use the percentages of cur-

rent smokers who began smoking at different ages:

$$\frac{\text{No. of current smokers starting in age-range X}}{\text{Total No. of current smokers}} \times 100 = \frac{\% \text{ current smokers who started in age-range X}}$$

If these latter percentages are plotted cumulatively on a semi-log scale, the approximate rate of propagation of the habit can be assessed (see Figure 5). This shows that there was a rapid rate of diffusion among both the men and women interviewed, but especially among the men, since 74 per cent of the male current smokers had already begun smoking at about age 19, and only 3 per cent began after age 29. The

FIGURE 5—Age of male and female smokers 15-74 years of age when they began smoking; cumulative percentages based on age-adjusted data from eight Latin American cities.



progression was somewhat less rapid among women: only 75 per cent of the female current smokers began smoking before age 25, and about 15 per cent started after age 29.

The level of smoking maintenance is indicated by the age-specific prevalence of current smoking.⁶ Figure 6 shows that these prevalences reach a plateau in the middle age groups of the eight cities surveyed and decline in the older age groups. Examining each of the cities individually, several patterns may be observed. For one thing, in the cities with lower smoking prevalences (Guatemala City, Lima, and Mexico City), a maximum level of maintenance was observed among men 40-54 years of age; while in cities with higher prevalences (La Plata, Santiago, and São Paulo), the maximum maintenance level was observed among men 25-39 years of age. In addition, the maintenance curve for women in each city tended to follow the bends of the curve for men in the same city much more than it followed the maintenance curves for women in other cities.

With regard to community diffusion and maintenance, the processes can be identified over the course of successive historic periods. However, lacking periodic surveys of levels of smokers in the population that go far enough back in time, we can use per capita consumption of cigarettes as an approximate indicator of community diffusion. Data on yearly adult consumption of cigarettes in six countries during 1940-1970, for example, yields the semi-log curves shown in Figure 7. It appears from these data that as of 1970 the diffusion process was not yet on the decline in Argentina, Portugal, or Sweden, where consumption levels were intermediate. On the other hand, diffusion seems to have largely abated in the three countries with the higher consumption levels (Canada, the

⁶ A more precise indicator would be:

$$\frac{\text{No. of current smokers in age group X}}{\text{No. of current smokers plus those who stopped smoking in age group X}} \times 100$$

FIGURE 6—Age-specific prevalences of cigarette smoking in the cities surveyed.

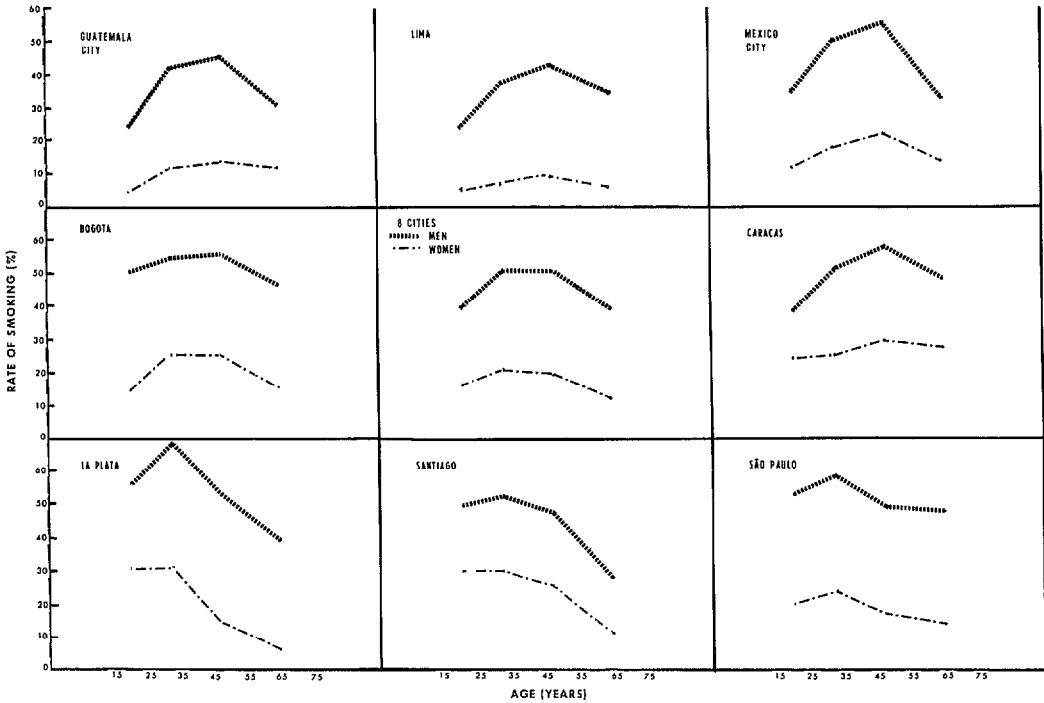
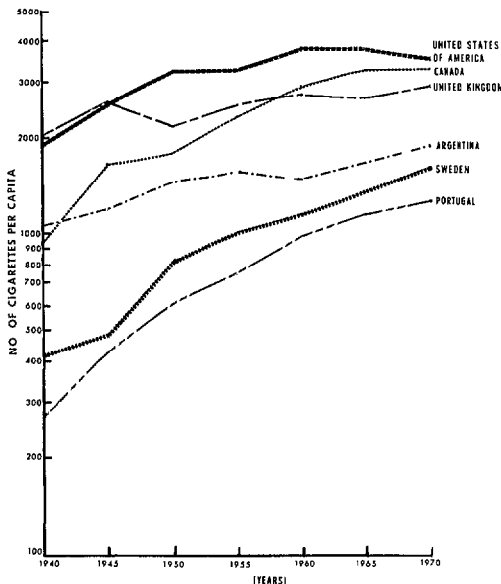


FIGURE 7—The average consumption of cigarettes per capita (15 years of age and over) in six countries, 1940-1970.



SOURCE: Beese, D. H., *Tobacco Consumption in Various Countries: Research Paper 6*, Tobacco Research Council (7).

United Kingdom, and the United States), the curves indicating that since about 1955 these countries had entered into a predominantly maintenance phase.

Among the commonly cited factors which influence the processes of diffusion and maintenance, the most notable are: norms of behavior prevailing in different sectors of the community, demographic and socioeconomic characteristics of the individuals involved, commercial advertising, industrial pressures, antismoking campaigns, and government policies regarding both tobacco farming and cigarette manufacture and sale. In addition, psychological rewards and nicotine addiction play a substantial role in the persistence of cigarette smoking.

In this vein, data from our own survey also suggest that many variables play active roles. In effect, current smokers were found to affirm more frequently than former and never smokers that cigarettes help them to

relax, give them more self-confidence, afford them pleasure, increase their personal attractiveness, and pose only minor health problems. On the other hand, current smokers assert less often than former and never smokers that cigarette smoking is harmful to health, that there should be fewer places where smoking is publicly allowed, that advertising and sale of cigarettes should be forbidden, and that teachers, physicians, and other health workers should refrain from smoking in public (see Table 10).

In general, data obtained from this and other surveys indicate that the decision to smoke depends heavily on a desire to conform to attitudes and norms of behavior in a subject's peer, family, and various reference groups. On the other hand, we may presume that repeated attempts to stop smoking are

frustrated largely by a combination of nicotine addiction, social pressures (such as peer group behavior), and psychological rewards.

In the context of the concepts developed above, the following points are suggested: (1) unabated diffusion does not proceed indefinitely; interlocked with maintenance, it reaches a maximum level beyond which it does not progress; (2) commercial advertising and social norms of behavior have their greatest influence on the rate and extent of the habit's diffusion; and (3) once diffusion has reached its peak, the continuation of the habit depends mainly upon prevailing patterns of behavior which make cigarette smoking socially acceptable—a theory reinforced by the high prevalence of cigarette smoking noted in countries where commercial advertising is either absent or at a minimum.

SUMMARY

During the period 1962–1964, diseases related to cigarette smoking were responsible for 20 per cent of all deaths in men between the ages of 35 and 64 in 10 large Latin American cities, and in the years that followed various indicators pointed to the fact that cigarette smoking was reaching very high levels in several countries of the Region. In the light of these trends, an investigation was undertaken in eight cities selected for their geographic, ethnic, and demographic diversity—Bogotá, Caracas, Guatemala City, La Plata (Argentina), Lima, Mexico City, Santiago, and São Paulo.

The aims of the study were: to obtain a reliable estimate of the prevalence of cigarette smoking in urban communities in Latin America, to establish a correlation between the habit and certain symptoms of cardiorespiratory and other disability, and to obtain an accurate assessment of public beliefs and attitudes with respect to cigarette smoking and its relation to health. One of the questionnaires used was similar to one employed in comparable investigations made in the United States in 1964, 1966, and 1970. Additional information on cardiorespiratory symptoms, non-specific mortality, absenteeism, and other subjects was collected on two other forms, one recommended by WHO and the other by the United States National Health Statistics Center.

A socioeconomically stratified probability sample of about 1,600 adolescents and adults of both sexes was selected for the investigation. In each of the households chosen, one person between the ages of 15 and 74 years was interviewed. Special analytical methods were then applied, on the basis of which the following conclusions were reached: the proportion of current smokers in the eight cities taken as a whole was two and one-half times greater in males than in females. The highest prevalence rates were observed in the intermediate age range. Other forms of tobacco smoking were uncommon in Latin America, in marked contrast to the situation in the United States. Standardized ratios of cigarette smoking by educational level showed that as the educational level rose there was an increased probability of females being smokers or former smokers and of men being former smokers. Most of the current smokers preferred filter cigarettes made with light tobacco, but a significant proportion cited a predilection for dark tobacco. The proportion smoking 20 or more cigarettes a day was close to the level recorded in the United States. The frequency of cardiorespiratory complaints such as cough, phlegm, and shortness of breath was generally higher among current smokers than among former smokers. Males and females who were current smokers spent more days in bed, on

the average, and were more often absent from work.

Imitation of the behavior of fellow workers, schoolmates, and other familiar acquaintances appears to be the predominant motive for starting the habit. But about a quarter of the smokers said they began to smoke because "it made them feel more manly," while a substantially smaller proportion of both sexes felt that cigarette smoking made them personally more attractive.

It is possible to view evolution of the smoking habit within a cohort or a community over time

in terms of separate processes of "diffusion" (spread of the habit) and "main tenance" (continuance of the habit). In general, such analysis suggests that unabated diffusion does not continue indefinitely, that commercial advertising and social norms of behavior have their greatest influence on the extent and rate of diffusion, and that once diffusion has reached its peak, continuation of the habit depends mainly upon prevailing patterns of behavior that make cigarette smoking socially acceptable.

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