

Smoking in Italy, 1987-90

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Abstract

Objective - To analyse smoking prevalence and patterns in Italy in 1987-90, and to compare them with previous data.

Design - Two population-based household surveys conducted by the DOXA Institute (the Italian branch of the Gallup International Research Institutes) in 1987 and 1990 on a total of 2087 individuals aged 15 or over, selected in order to be representative of the whole Italian population.

Main outcome measures - Estimated prevalence of smoking in strata of sex, age group, geographic area, and education, based on combined data from the 1987 and 1990 surveys.

Results - Overall, 32% of Italians (38% of males, 27% of females) were current smokers, and 16% (22% of males, 9% of females) smoked 15 or more cigarettes per day; 19% were ex-smokers (28% of males, 10% of females), and 47% never smokers (32% of males, 63% of females). The average number of cigarettes per smoker per day was 16.3 in 1990 (18.6 for males and 12.1 for females). Related to the whole adult population, this corresponds to 5.2 cigarettes per day, which compares well with the estimate of 5.3 derived from legal sales figures. However, since the latter do not include smuggled cigarettes, the figures from interview-based surveys are, to some degree, underestimates. At younger ages (15-24 years) the proportion of current smokers was similar for males (33%) and females (31%), but the difference increased with age: at age 65 or over 26% of males were current smokers but only 10% of females. In both sexes, the highest proportion of smokers was among individuals with intermediate education; however, while more educated males were less frequently smokers, the opposite was true for females (28% of smokers among more educated and 21% among less educated women). Males residing in northern (and wealthier) areas of the country were less frequently smokers (34% versus 43% in the centre and 41% in the south), but no appreciable relationship with geographic area emerged for females.

Conclusions - In comparison to survey data for 1957-75, these findings show a long-term decline in reported smoking prevalence in Italian males, but a sub-

stantial increase in smoking among females. The prevalence of smokers in 1987-90 for both sexes was similar to those reported from North America and most Western European countries. The observation that not only has the overall prevalence of smoking increased among Italian women, but also that smoking rates were higher in younger and more educated women suggests that, in the absence of adequate intervention, smoking and smoking-related diseases are likely to spread further among Italian women in the near future.

(Tobacco Control 1993; 2: 231-5)

Introduction

Trends in tobacco smoking in Italy have been monitored since early this century on the basis of legal tobacco sales, and from 1949 onwards on the basis of interview-based surveys conducted by the DOXA Market Research Institute (the Italian branch of the Gallup International Research Institutes) and, subsequently, the Italian National Institute of Statistics (ISTAT). These trends through 1987 have been analysed and published previously.¹⁻⁴

In this work, we present data on reported prevalence of cigarette smoking and tobacco sales in Italy in the period 1987-90.

Methods

The data presented in this study have been collected by DOXA for the European Economic Community, in 1987 and 1990, through two surveys carried out using the same study design and methods, for a total sample of 2087 individuals, aged 15 years or more, including 1054 respondents for the 1987 study and 1033 for the 1990 one.

The data were collected by *ad hoc* trained interviewers, using a structured questionnaire for personal in-house interviews.

The "statistical population" upon which the surveys were based is all Italian men and women aged 15 years and over (about 46.7 million persons in 1987 and 47.9 million in 1990). The above-mentioned population was studied using a representative cross-sectional sample of Italian adults, in all the Italian regions. In each study, interviews were carried out in about 170 communes (the smallest Italian administrative division) in all of the 20 Italian regions (the largest Italian administrative division) identified in order to be representative of the geographical areas

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sampled, and were distributed by geographical area and size of communes in proportion to the distribution of the adult population.

In the communes considered, interviewers were selected randomly from names and addresses on electoral lists, within strata of sex and age group, in order to be representative of the demographic structure of the population. A maximum of three attempts were made to contact each individual selected. A replacement, again randomly selected, was used for subjects who could not be traced.

In addition to general information on socio-demographic characteristics, data were collected on smoking behaviour, including smoking status (never/ex/current smoker), forms of tobacco smoked, current number of cigarettes smoked per day, and (for ex-smokers) time since quitting.

SAMPLING METHODS

The population described was subdivided into sections or "strata" on the basis of two characteristics: region and size of community. The number of interviews to be carried in each stratum (eg, communities in Piedmont with less than 5000 inhabitants) was set in proportion to the distribution of the population of the "stratum" in the area (Italy).

Taking as criteria the two characteristics, region and size of community, the sampling units included in the sample were a miniature reproduction of the population covered (the method is known as proportional stratified sampling). Within each of the 75 "strata", the sampling units (communities, districts of communities, individuals) were chosen in the following way.

In the *first stage*, the communities (sampling points) in which the interviews were to be conducted were selected from within the network of DOXA sampling points. The representativeness of the communities chosen was checked on the basis of ownership of durables and purchasing-power indices of the population.

In the *second stage*, in each commune an adequate number of electoral wards were extracted at random (each corresponding to a given district of the community) so that the various types of inhabited areas of the community were represented in the right proportions (ie, central and suburban districts, outskirts and isolated houses).

In the *third stage*, the names and addresses of the persons to be interviewed were extracted at random from the electoral lists of the wards selected in the second stage. Persons aged between 15 and 17 whose names did not appear on the electoral lists were chosen by means of the "quota" method.

Legal sales figures and estimates of the resident population were derived from official ISTAT publications.⁵

Significance of differences in proportions was based on the usual chi-square test, the conventional $p < 0.05$ value being used to define statistical significance. The standard errors of the proportions were based on the exact Poisson distribution.

Results

Table 1 gives the percent distribution of the total study sample from the two surveys of 1987 and 1990 combined (ie, 2087 individuals) according to smoking status and sex. Overall, 32.4% of Italians aged 15 or over (38.2% of males, 26.8% of females) were current smokers (defined as subjects who had smoked at least one cigarette per day in the year before the interview); 31.4% were cigarette smokers, and 1.0% pipe or cigar smokers (ie, regular smokers of pipe or cigars only); 15.5% (21.8% of males, 9.3% of females) smoked 15 or more cigarettes per day. Ex-smokers (defined as subjects who had smoked at least one cigarette per day in the past but who had been off cigarettes for at least one year) were 19.0% (28.0% males, 10.2% females); never-smokers 47.3% (31.6% males, 62.6% females).

Table 2 compares the overall prevalence of smoking in the 1987 and 1990 surveys, and in previous surveys conducted by DOXA since 1957. All estimates take into account the demographic changes in the population. The results of the last two surveys were similar: 38.1% of males were current smokers in 1987 versus 38.3% in 1990, and the figures for females were 27.6% in 1987 and 25.9% in 1990. The overall estimated prevalence of smoking among Italian adults was 32.8% in 1987 and 32.0% in 1990. Average self-reported daily cigarette consumption per smoker was 13.6 in 1987 and 16.3 in 1990. Long-term trends in smoking prevalence showed a decline for males, starting from 65% of current smokers in 1957, but a substantial increase for females, starting from 6.2% in 1957.

Estimates of tobacco smoking from interview-based surveys can be compared with legal sales figures,⁵ reported in table 3. In contrast to the trends shown by interview-based surveys, the latter show an appreciable decline in tobacco consumption from 1986 to 1990 (from 2.33 to 1.94 kg per inhabitant aged 15 or over per year – a 17% decline). Legal sales figures show an average consumption of 5.3 cigarettes per adult per day in 1990, which compares well with the 5.2 figure derived from interview-based surveys (note that this figure is *per adult*, including smokers and non-smokers, whereas the figure of 16.3 cited above is *per smoker*). Legal sales, however, do not

Table 1 Percent distribution and corresponding standard errors (SE) of the total study sample of 2087 individuals aged 15 or over according to smoking status and sex, Italy, 1987–90

	Males		Females		Total	
	%	(SE)	%	(SE)	%	(SE)
Never-smokers	31.6	(1.7)	62.6	(2.5)	47.3	(1.4)
Ex-smokers	28.0	(1.7)	10.2	(0.9)	19.0	(1.0)
Cigarette smokers, total	38.2	(1.9)	26.8	(1.5)	32.4	(1.3)
< 15 cigarettes/day	16.4	(1.2)	17.5	(1.2)	16.9	(0.9)
15–24 cigarettes/day	15.0	(1.2)	7.4	(0.7)	11.2	(0.7)
≥ 25 cigarettes/day	6.8	(0.7)	1.9	(0.5)	4.3	(0.5)
Pipe/cigar smokers	1.8	(0.4)	0.1	(0.1)	1.0	(0.2)
No of subjects	1033		1054		2087	

Table 2 Prevalence (%) of cigarette smoking among adults 15 years of age or over and average daily cigarette consumption per smoker according to five DOXA surveys, Italy, 1957-90

Calendar years	Males		Females		Total	
	Smoking prevalence	Cigarettes/day	Smoking prevalence	Cigarettes/day	Smoking prevalence	Cigarettes/day
1957	65.0	13.3	6.2	7.0	35.4	12.4
1965	60.0	13.3	7.7	5.8	32.9	11.7
1975	53.2	N/A	16.3	N/A	34.0	N/A
1987	38.1	15.1	27.6	10.4	32.8	13.6
1990	38.3	18.6	25.9	12.1	32.0	16.3

N/A indicates not available.

Table 3 Trends in total legal tobacco sales in Italy, 1985-90⁵

Calendar year	Tobacco sales (tons × 1000)	kg/inhabitant aged 15 or over
1985	106.8	2.33
1986	106.2	2.31
1987	100.8	3.19
1988	99.1	2.10
1989	98.9	2.08
1990	92.3	1.94
Percent change, 1985-90	-13.6	-16.7

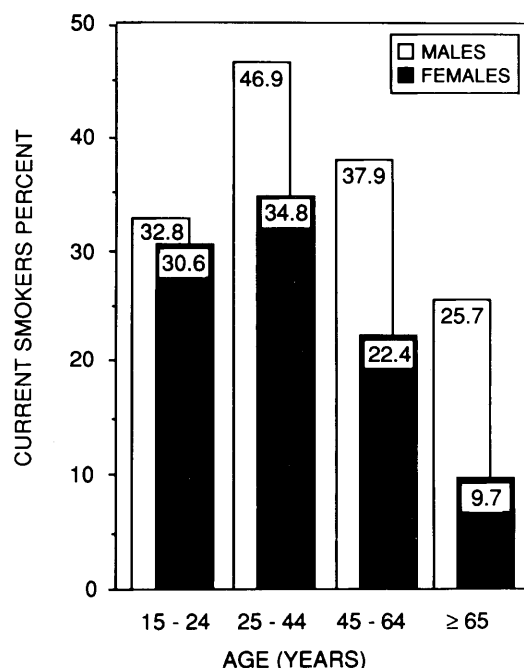


Figure 1 Prevalence of current smokers according to sex and age group. Italy, 1987-90

take account of smuggling, which in several areas of the country represents a considerable proportion of tobacco sales. In the early 1980s smuggling probably accounted for 10 to 30% of total sales,^{4,9} but, from comparison of the survey and sales figures, seems to have increased substantially over the last few years. A more precise estimate is, unfortunately, not available.

AGE AND SEX

The proportion of male and female current smokers in four separate age groups is given in figure 1. At younger ages (15-24), there was a small difference between males (33%) and females (31%), which, however, increased

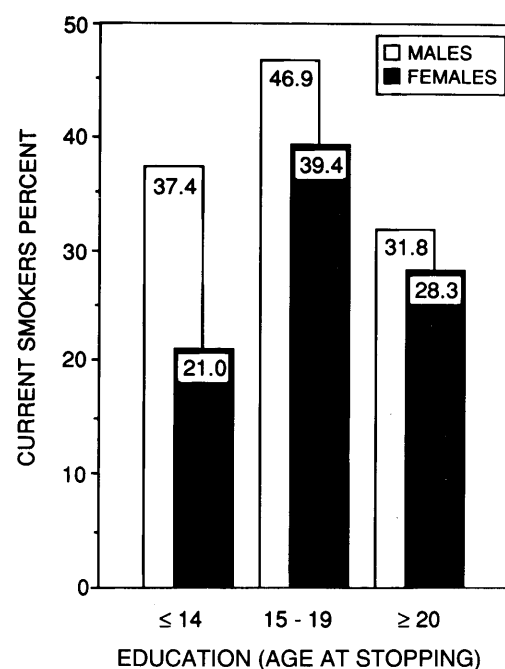


Figure 2 Prevalence of current smokers according to sex and completed education. Italy, 1987-90

with age: at age 65 and over, 26% of males were current smokers versus only 10% of females. Ex-smokers were 7%, 20%, 41%, and 49% of males in subsequent age groups (younger to older) and 7%, 12%, 11% and 9% of females. All the differences between males and females were significant ($p < 0.05$), except that for the younger age group.

EDUCATION

For both sexes, the highest proportion of smokers was among individuals with intermediate education (47% of males, 39% of females, figure 2). However, whereas more educated males were less frequently smokers than less educated ones, the opposite was apparent for females: the proportion of current smokers was 28% among more educated women but 21% among less educated ones. The difference between males and females was significant for the two lowest levels of education, but not for the highest one.

GEOGRAPHIC AREA

Males residing in northern (wealthier) areas of the country were less frequently current smokers (34% versus 43% in the centre and

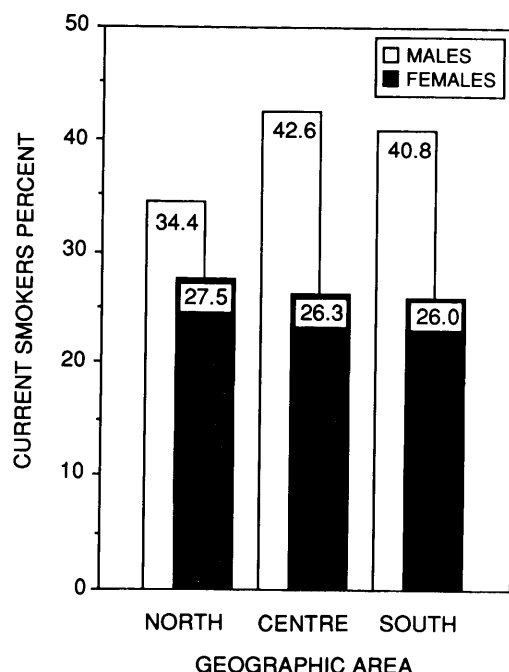


Figure 3 Prevalence of current smoking according to sex and geographical area. Italy, 1987-90

41% in the south, figure 3). No appreciable differences emerged for females.

Discussion

The findings of these two population-based surveys in 1987 and 1990, compared to data from earlier surveys, show a long-term decline in reported smoking prevalence for males, as well as a substantial increase in cigarette smoking among Italian women over the last three decades. The difference in smoking prevalence between males and females, which was over a factor of 10 in the late 1950s, declined to less than 35% in 1990. Further, while the average male smoker smoked about twice as many cigarettes per day as a female smoker in the 1950s, this difference declined to approximately 50% in 1990.

Thus, the prevalence of smoking in 1987-90 in Italy for both sexes was similar to that reported for the US,^{6,7} Canada,⁸ and several other Western European countries,⁹ although the average number of cigarettes smoked per day was lower than in North America.⁶⁻⁹

Our definition of smokers excluded occasional (ie, less than daily) smokers, and the same criterion was applied to previous surveys. It is therefore difficult to give any estimate of trends in occasional smoking in Italy.

The results of the 1987 and 1990 surveys were internally consistent, and are also consistent with previous surveys conducted by the DOXA Institute.^{10,11} They are also in agreement, for males, with the results of three large surveys conducted in 1980, 1983, and 1986-87 by the Italian National Institute of Statistics.¹²⁻¹⁴ An important difference, however, emerged between the figure reported for females in 1986-87 by the ISTAT survey (17.3% prevalence of current smokers),¹⁴ and the present study (27.6%). This is too large to be ex-

plained only through random variation, sampling bias, or other methodological differences in the design and conduct of the two surveys, and must therefore include an important degree of information bias (ie, underreporting of smoking).

Self-reported cigarette consumption has in fact tended to be systematically and substantially underestimated.¹⁵⁻¹⁷ Although this underreporting has almost certainly also biased the results of the present surveys, their finding is more consistent with legal sales figures than the ISTAT estimates. Still, smuggled cigarettes have always accounted for a large, though difficult to estimate, proportion of all sales in Italy,^{1,2,4} and this appears to have increased between 1987 and 1990, as indicated by a comparison of sales and interview-based data. Thus, sales figures are lowered by smuggling, while self-reported estimates are lowered by underreporting. The degree of this underreporting is difficult to indicate, but was estimated at 10-30% in the early 1980s.¹

An interesting pattern emerged with reference to educational level. The highest prevalence of smoking among subjects with intermediate levels of education, particularly for females, probably reflects some delay in spreading of smoking in lower social class women, but also the decline in smoking among more educated individuals, particularly males.^{3,4} Consequently, more educated women still smoked more than less educated ones. This pattern was also reproduced in various geographical areas. Within Italy, there were no differences in smoking policies or excise taxes in various geographical areas, but smuggling was almost certainly more important in the south of the country.

Thus, the present findings show unfavourable trends in cigarette smoking among Italian women. Not only has the overall prevalence of smoking substantially increased among women, but smoking rates are still higher in younger generations and among more educated women. In 1983, for example, the proportion of current smokers among those aged 15-24 years was 33% for males, but 20% for females.^{2,3} In 1987-90 this difference had almost disappeared, with the corresponding proportions being 33% for males and 31% for females. This pattern predicts a further spread of smoking, and consequently of smoking-related diseases,¹⁸ among Italian women in the near future, in the absence of appropriate intervention. In general, the observation that socio-cultural factors, rather than the accumulated knowledge on the health consequences of smoking,¹⁹ are major determinants of smoking further stresses the importance of developing and implementing more effective measures for tobacco control.

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