

FIGURE 5.—Percentage of ever smokers who never tried to quit, by education, United States, 1974–87

SOURCE: NHISs 1974, 1976, 1978, 1979, 1980, 1987; OSH, unpublished data.

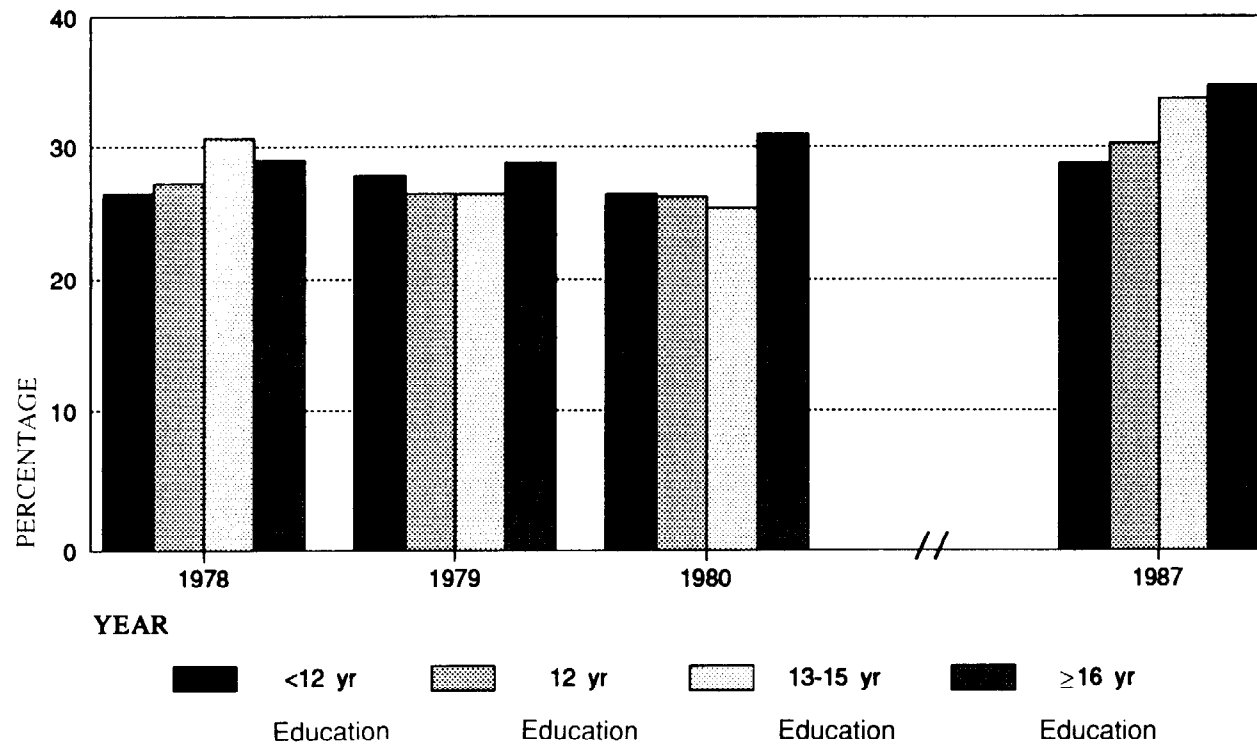


FIGURE 6.—Percentage of persons smoking at 12 months prior to the survey interview who quit for at least 1 day during those 12 months, United States, 1978–80, 1987, by education

SOURCE: NHIS, 1978–1979–1980–1987; OSH, unpublished data.

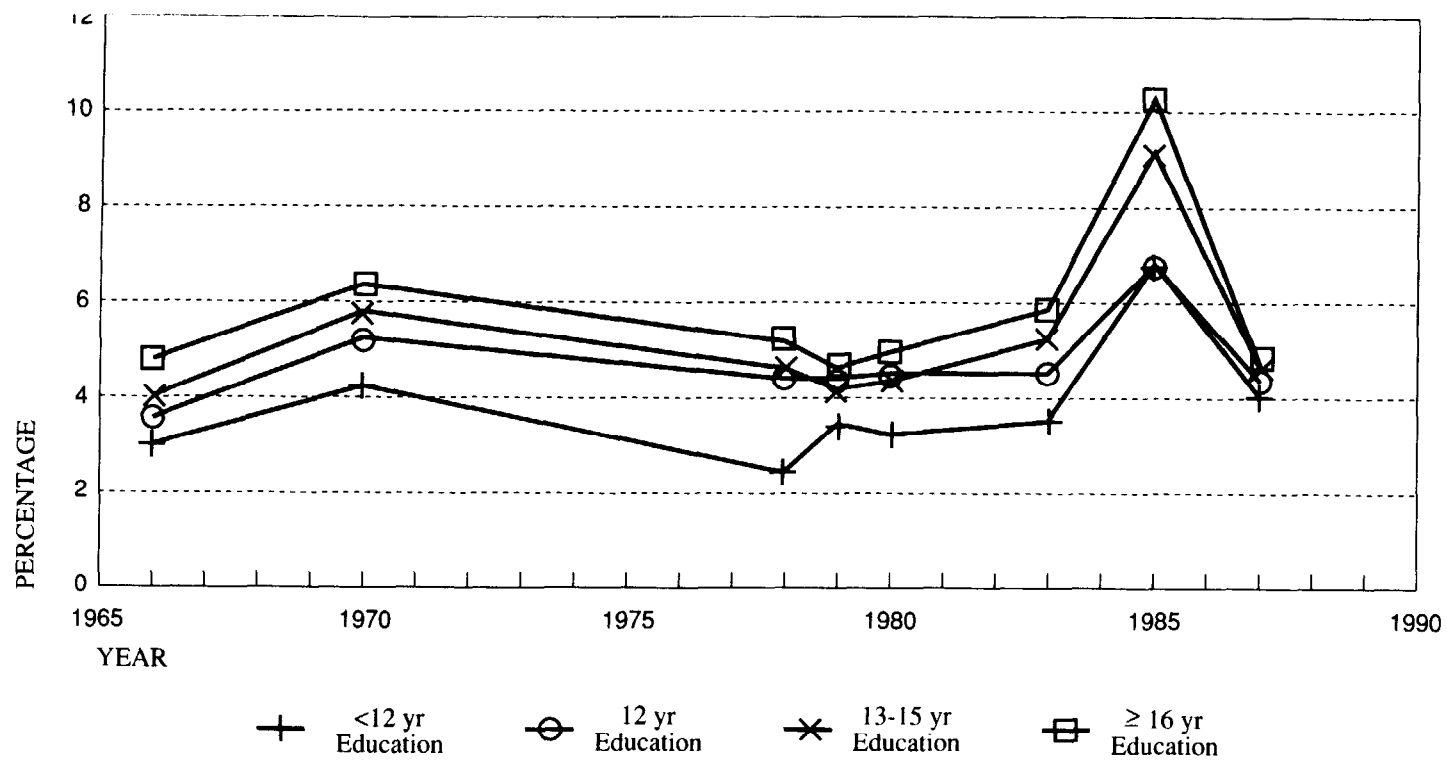


FIGURE 7.—Percentage of ever smokers who had been abstinent for less than 1 year, United States, 1966–87, by education

SOURCE: NHISs 1966, 1970, 1978, 1979, 1980, 1983, 1985, 1987; OSH, unpublished data.

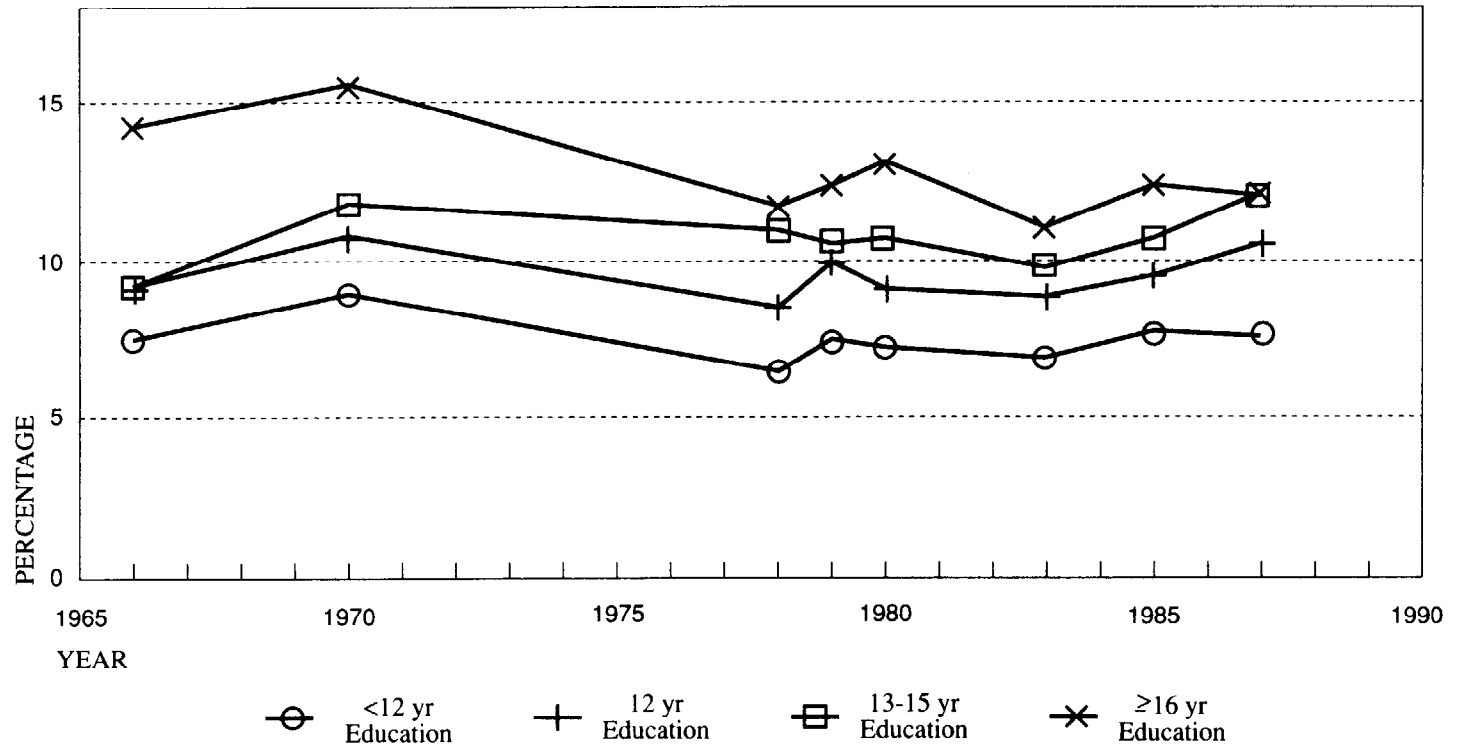


FIGURE 8.—Percentage of ever smokers who had been abstinent for 1–4 years, United States, 1966–87, by education

SOURCE: NHIS: 1966, 1970, 1978, 1979, 1980, 1983, 1985, 1987; OSH, unpublished data.

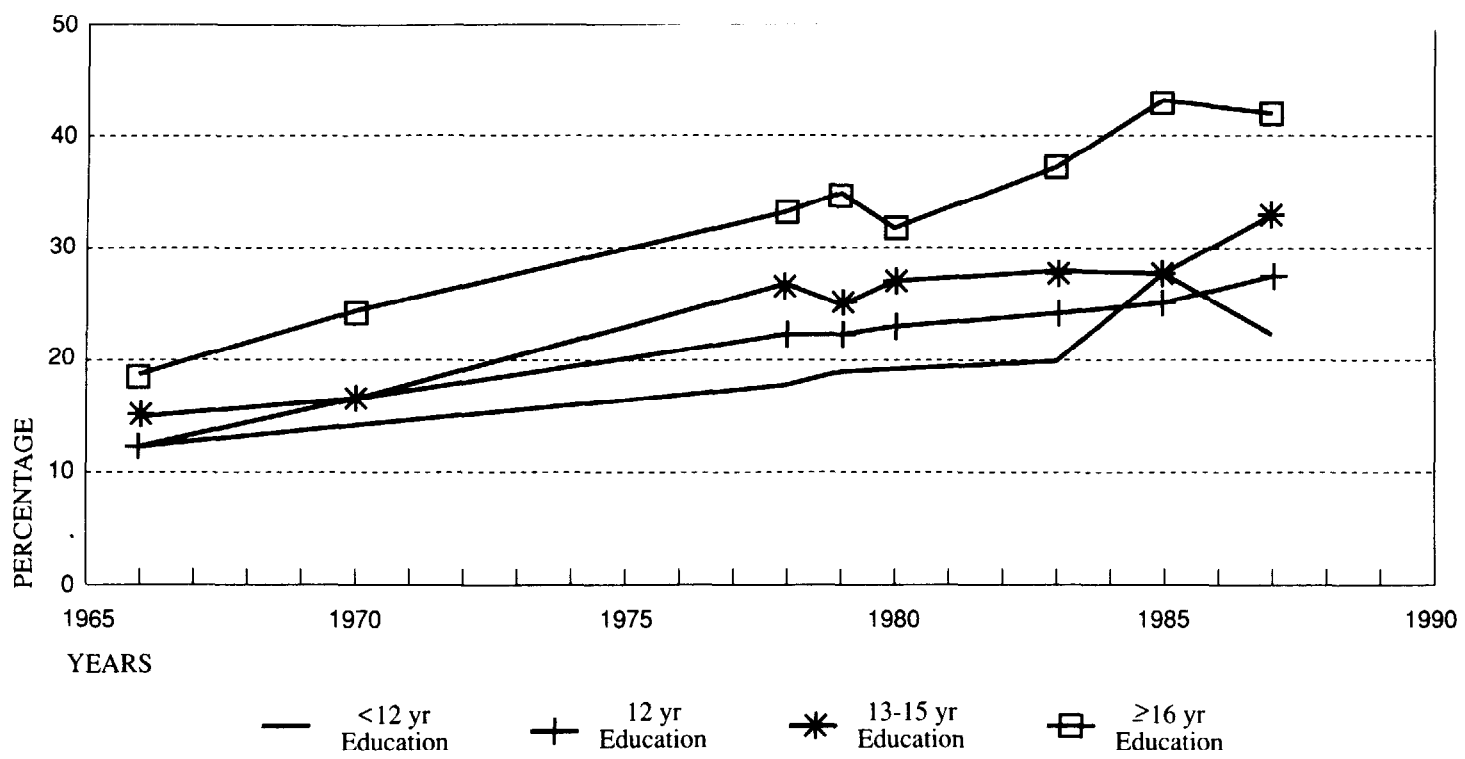


FIGURE 9.—Percentage of ever smokers who had been abstinent for 5 years or more, United States, 1966–87, by education

SOURCE: NHISs 1966, 1970, 1978, 1979, 1980, 1983, 1985, 1987; OSH, unpublished data.

Percentage of Those Smoking at 12 Months Prior to a Survey Interview Who Quit for at Least 1 Day During Those 12 Months

The percentage of those smoking at 12 months prior to a survey interview who stopped for at least 1 day during those 12 months is a measure of quitting activity—that is, quitting attempts—independent of the success of those attempts. Trend data show that this percentage was slightly higher in 1987 than in the 3 earlier years (1978, 1979, and 1980) in all educational strata (Figure 6).

Data show an effect of all demographic variables (gender, race, education, and age) on quitting for at least 1 day (Table 5). Females are significantly more likely to be in this category than are males. Blacks, more than whites, are more likely to have been abstinent for 1 day or more. Although the effect of education is not statistically significant, the data suggest a positive trend. Overall, the likelihood of being abstinent for at least 1 day tends to be higher in the more highly educated groups (Figure 6), especially in 1987. Finally, there is a J-shaped relationship between quitting for at least 1 day and age. The proportion in this category is highest in the two younger age groups, lowest in the 45–64-year-old group, and intermediate in the oldest age group.

Percentage of Ever Smokers Who Had Been Abstinent for Less Than 1 Year

The data in Figure 7 show trends, analyzed according to education, in the proportion of ever smokers who, at the time of the survey, had been abstinent for less than 1 year. In general, no stable trend over the years or absolute change in this proportion from 1965 to 1987 is seen. This lack of a consistent pattern is also evident when the data are classified by gender, race, and age. In every subgroup, the proportion of ever smokers who had been abstinent for less than 1 year in 1985 increased; the reason for this increase is unclear. Data from the 1988 NHIS, which were not available when this Report was prepared, should help clarify recent trends in this measure of quitting.

The data show effects of most of the demographic variables on the likelihood of being in this category (Table 5). In general, the two younger age groups are more likely than the two older age groups to have been abstinent for less than 1 year. A higher proportion of whites than blacks have been abstinent for less than 1 year. However, given that the trend in this proportion has been generally stable for whites and increasing for blacks, the gap between the races has closed with time. The level of education is positively associated with the likelihood of being in this category. Those with the least education (<12 years) are slightly less likely to be recent quitters compared with other education groups. There is no difference between the sexes in the likelihood of being in this category.

Percentage of Ever Smokers Who Had Been Abstinent for 1 to 4 Years

Figure 8 presents data on trends in the proportion of ever smokers, who at the time of the survey had been abstinent from 1 to 4 years, are stratified by education. While no consistent patterns appear across time, the data show that education is positively associated with being abstinent for 1 to 4 years. Those with the highest education level

(16+ years) are the most likely to have quit 1 to 4 years earlier, and those with the lowest educational level (<12 years) are the least likely.

The data also show that for 1965–1978, the proportion of males who had been abstinent for 1 to 4 years is slightly higher than that for females (although across the entire time period 1965–87, there is no difference in the proportions between the sexes). Given that the proportion off cigarettes for 1 to 4 years has been increasing significantly for females and remained stable for males with time, the gap between the genders has closed (Table 5). Whites are more likely than blacks to have been abstinent for 1 to 4 years. The data do not show any consistent patterns with respect to age. Across time, on average, the proportion of those in the 45–64-year age group in this category is slightly lower than in the other age groups.

Percentage of Ever Smokers Who Had Been Abstinent for at Least 5 Years

Data on the proportion of ever smokers who, at the time of the survey, had been abstinent for 5 years or more show positive trends with time for the overall population and for every population subgroup (trends across education shown in Figure 9). Overall, the proportion of ever smokers in this category has more than doubled from 12.4 percent in 1965 to 29.8 percent in 1987. Data from the 1955 Current Population Survey (the first large survey of tobacco use conducted among a probability sample of the U.S. population) indicate that 5.0 percent of those who ever smoked cigarettes were abstinent for at least 4.5 years in 1955 (Haenszel, Shimkin, Miller 1956).

The data also show strong effects of all four demographic variables on the likelihood of being abstinent for at least 5 years. Figure 9 shows that those with the most education (16+ years) are the most likely to have been abstinent for 5 years or more than those in the other categories. On average, over time, the data show that increasing education is associated with increasing likelihood of being in this category (Table 5). Also seen in the data are a gender effect (males are more likely than females to have been abstinent for 5+ years), a race effect (whites are more likely than blacks to be in this category), and a strong effect of age (increasing age is associated with increasing likelihood of being abstinent for at least 5 years). The age effect is due, at least in part, to the fact that older persons have had a longer opportunity to quit and maintain long-term abstinence compared with younger persons. The gaps between the races and across age groups (and to a lesser extent, across education) have been increasing with time.

Interpretation of Continuum Findings

In the period spanned by these data, a slightly increasing proportion of smokers are attempting to quit and are maintaining abstinence. Slightly less than a third of the people who were smoking at 12 months before the 1987 survey quit smoking for at least 1 day during those 12 months. Trends categorized by sociodemographic subgroups show that females, blacks, younger persons, and more highly educated persons are more likely than the appropriate comparison groups to have quit for at least 1 day during the last year.

One way to determine whether these quit attempts have been successful is to examine trends in the proportion of ever smokers who have been abstinent for 1 to 4 years. Although blacks are more likely than whites to have quit for 1 day or more, whites are more likely to have successfully maintained abstinence for 1 to 4 years. Younger smokers are more likely to have quit for 1 day or more than older smokers; however, there are only small absolute differences across age groups in the percentage who have been abstinent for 1 to 4 years. The positive trend across educational categories with respect to quitting for 1 day or more parallels important differences seen in the likelihood of being abstinent for 1 to 4 years. Those with the lowest level of education were the least likely to make an attempt to quit and the least likely to maintain long-term abstinence. Those with the highest level of education were the most likely to have made a quit attempt and the most likely to maintain long-term abstinence. Finally, although females were more likely than males to have quit for at least 1 day, there were no gender differences in abstinence for 1 to 4 years.

The data on the increasing proportion of ever smokers who have been off cigarettes for at least 5 years show that more ever smokers are entering this category by successfully quitting and abstaining than are exiting by death or relapse. Overall, this proportion has increased 242 percent between 1965 and 1987. Consistent with other data showing that males began quitting earlier than females (Fiore et al. 1989), proportionately more males than females are in this category. Similarly, whites began quitting earlier, and are therefore, more likely than blacks to have stopped smoking for 5 years or more. There is also evidence that those with the highest level of education have been abstinent for a longer period than those with less education. Finally, older people were more likely to have been abstinent for at least 5 years. This positive relationship reflects the accumulation of successful quitters with age and, probably to some extent, the benefits of cessation on survival.

OTHER MEASURES RELATED TO SMOKING CESSATION

Intention to Smoke in 5 Years

Intention to smoke or quit is a predictor of future smoking behavior (Collins, Emont, Zywiak, in press; Cummings et al. 1988; Pierce, Dwyer et al. 1987; Pederson, Baskerville, Wanklin 1982). Current and former smokers responding to the five OSH-sponsored surveys of tobacco use were asked to assess the likelihood that they would be smoking in 5 years. There is little change in the responses of former smokers since 1964. In each survey year, fewer than 3.2 percent of all former smokers responded that they would be smoking again in 5 years. Thus, former smokers overestimate the likelihood that they will remain abstinent. (See the previous Section, Long-Term Abstinence and Relapse.)

In Table 6, the predicted likelihood of future smoking behavior among current smokers is presented for each survey year by gender. The sharp dropoffs that occurred between 1966 and 1970 may have occurred as a result of the widespread television broadcast of antismoking public service announcements (PSAs) from 1968 to 1970

TABLE 6.—Percentage of those intending to smoke in 5 years, by gender, AUTSs, United States, 1964–86, current smokers aged 21 and older

Year	Definitely will be smoking		Probably will be smoking		Total (definitely + probably)	
	Male	Female	Male	Female	Male	Female
1964	25.2	20.1	50.6	54.4	75.8	74.5
1966	22.3	15.6	53.7	55.4	76.0	71.0
1970	10.9	10.2	39.1	41.1	50.0	51.3
1975	11.7	12.0	44.2	45.9	55.9	57.9
1986	7.3	6.4	35.2	38.8	42.6	45.3

NOTE: AUTS=Adult Use of Tobacco Survey.

SOURCE: AUTSs 1964, 1966, 1970, 1975, 1986.

under the Federal Communications Commission’s Fairness Doctrine (US DHHS 1989a). Longitudinal data collected between 1964 and 1975 supported the hypothesis that the Fairness Doctrine PSAs influenced smokers’ attitudes about quitting (Horn 1979). The percentage of smokers who “thought seriously about giving up smoking” increased from 56 percent before the PSAs to about 85 percent at the end of, and 5 years after, the PSAs. The proportion of smokers who tried to quit and the overall cessation rate also increased over the same timeframe.

The slight increases in intention to smoke from 1970 to 1975 might reflect a decay effect after the removal of the antismoking commercials. The reduction between 1975 and 1986 could reflect an increase in antismoking activity, such as the growth of the nonsmokers’ rights movement (US DHHS 1989a).

Receipt of Advice to Quit from a Doctor

Advice to quit smoking by a doctor increases patient cessation rates (Glynn, Manley, Pechacek, 1990; Kottke et al. 1988; Schwartz 1987; US Preventive Services Task Force 1989). Data from Table 7 show that the percentage of current smokers who report having ever been advised by a doctor to stop smoking increased steadily for both genders between 1964 and 1987. Male current smokers were 3.1 times more likely to report having received advice from a doctor to stop smoking in 1987 than in 1964; female current smokers were 3.2 times more likely to have reported receipt of such advice in 1987 than in 1964.

The data for former smokers, while less consistent, also show increases with time. Male former smokers were 1.5 times more likely to report having received advice from a doctor to stop smoking in 1987 than in 1964. Female former smokers were 2.1 times more likely to report having received such advice in 1987 than in 1964.

In summary, large increases in the percentages of current and former smokers who reported having received advice to quit occurred between 1976 and 1987.

TABLE 7.—Percentage who report having ever received advice to quit from a doctor, by smoking status and gender, United States, 1964–87, adults aged 21 and older

Survey	Current smokers		Former smokers	
	Male	Female	Male	Female
AUTS 1964	15.0	16.6	22.3	15.9
AUTS 1966	16.9	18.8	27.8	21.8
AUTS 1970	21.8	25.0	20.0	20.1
NHIS 1974	25.2	27.8	22.6	18.9
AUTS 1975	26.2	28.2	24.2	23.7
NHIS 1976	26.8	30.2	24.4	19.3
AUTS 1986	40.0	53.1	26.4	27.8
NHIS 1987	46.6	53.8	33.6	32.8

NOTE: AUTS=Adult Use of Tobacco Survey; NHIS=National Health Interview Survey.

CONCLUSIONS

1. By 1987, more than 38 million Americans had quit smoking cigarettes, nearly half of all living adults who ever smoked.
2. The percentage of ever cigarette smokers who are former cigarette smokers (quit ratio) has increased from 29.6 percent in 1965 to 44.8 percent in 1987 at an average rate of 0.68 percentage points per year. The quit ratio has increased among men and women, among blacks and whites, and among all age and education subgroups. Between 1966 and 1987, the rate of increase in the quit ratio among college graduates was twice the rate among high school dropouts.
3. About one-third of all former cigarette smokers who have maintained abstinence for at least 1 year may eventually relapse. As the duration of abstinence increases, relapse becomes less likely.
4. Quitting activity, as measured by the proportion of people smoking at 12 months before a survey who quit for at least 1 day during those 12 months, has increased slightly over time. Between 1978 and 1987, this proportion increased from 27.8 to 31.6 percent.
5. Female smokers were more likely than male smokers to have quit smoking cigarettes for at least 1 day during the previous year; however, there were no gender differences in the proportion abstinent for 1 to 4 years. Men were more likely than women to have been abstinent for 5 years or more. These findings do not take into account the use of tobacco products other than cigarettes.

6. Black smokers were more likely than white smokers to have quit for at least 1 day during the previous year. Blacks, however, were less likely than whites to have been abstinent for 1 year or more.
7. Younger smokers (aged 20 to 44) were more likely than older smokers to have quit for at least 1 day during the previous year.
8. Smokers with less education tend to be less likely to have quit for at least 1 day during the previous year compared with those having more education. In addition, those with lower levels of education are less likely to have been abstinent for 1 year or more.
9. In 1964, about three-fourths of all current smokers predicted that they would “definitely” or “probably” be smoking in 5 years. In 1986, fewer than half of all current smokers felt the same way. Moreover, while more than 20 percent of current smokers in 1964 predicted that they would “definitely” be smoking in 5 years, only about 7 percent of current smokers in 1986 so predicted.
10. Current smokers in 1987 were more than three times as likely as current smokers in 1964 to report having received advice from a doctor to stop smoking.

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GLOSSARY

AARP	American Association of Retired Persons
ACS	American Cancer Society
AR	attributable risk
AUTS	Adult Use of Tobacco Survey
BM	bone mass
BMI	body mass index
BP	blood pressure
BPS	Baseline Prevalence Survey
BRFSS	Behavioral Risk Factor Surveillance System
BUPA	British United Providence Association
CASS	Coronary Artery Surgery Study
CC	closing capacity
CCDPHP	Center for Chronic Disease Prevention and Health Promotion
CDC	Centers for Disease Control
CHD	coronary heart disease
CI	confidence interval
cig	cigarettes
CNS	central nervous system
CO	carbon monoxide
COHb	carboxyhemoglobin
COPD	chronic obstructive pulmonary disease
CPS	Center for Preventive Services
CPS-I	Cancer Prevention Study I
CPS-II	Cancer Prevention Study II
CV	closing volume
CVD	cardiovascular disease
DBP	diastolic blood pressure
DHEW	Department of Health, Education, and Welfare
DHHS	Department of Health and Human Services
DLCO _{SB}	carbon monoxide diffusing capacity
DPA	dual photon absorptiometry
DSM-III-R	<i>Diagnostic and Statistical Manual of Mental Disorders</i>
FEV ₁	1-sec forced expiratory volume
FVC ₁	1-sec forced vital capacity
HANES	Health and Nutrition Examination Survey

HB _s Ag	hepatitis B surface antigen
HCN	hydrogen cyanide
HDL-C	high-density lipoprotein cholesterol
HMO	health maintenance organization
HR	heart rate
IARC	International Agency for Research on Cancer
LDL-C	low-density lipoprotein cholesterol
MI	myocardial infarction
MMEF	mid-maximum expiratory flow
MRC	Medical Research Council
MRFIT	Multiple Risk Factor Intervention Trial
NCHS	National Center for Health Statistics
NCI	National Cancer Institute
NHANES-I	National Health and Nutrition Examination Survey I
NHEFS	NHANES Epidemiologic Followup Study
NHIS	National Health Interview Survey
NHLBI	National Heart, Lung, and Blood Institute
NNS	National Natality Survey
OSH	Office on Smoking and Health
PBI	penile brachial index
PCA	percent cortical area
pDL	predicted diffusing capacity
PEF	peak expiratory flow
PHS	Public Health Service
POMS	Profile of Mood States
PPA	phenylpropanolamine
ppd	packs per day
PSA	public service announcement
REE	resting energy expenditure
RR	relative risk
SBP	systolic blood pressure
SCN ⁻	thiocyanate
SD	standard deviation
SES	socioeconomic status
SGA	small gestational age
SIDS	sudden infant death syndrome
SPA	single photon absorptiometry
ST	smokeless tobacco
STD	sexually transmitted disease
TLC	total lung capacity
TQ	Fagerstrom Tolerance Scale
VC	vital capacity
WHO	World Health Organization
WHR	ratio of waist to hip circumference