Ages at Initiation of Cigarette Smoking and Quit Attempts Among Women: A Generation Effect

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Objectives. This study sought to determine whether the age at initiation of regular cigarette smoking and the likelihood of quitting smoking through age 35 differ among women from younger versus older generations.

Methods. Annual population-based, random surveys (total of 3676 female residents of Geneva, Switzerland, aged 35–74 years) were conducted from 1992 to 1998.

Results. Women younger than 55 years were more likely to be past or current smokers, began smoking earlier (median age < 20 years), and smoked more cigarettes per day than older women, yet attempted to quit smoking more often before age 35 (log-rank $P < .001$).

Conclusions. Young female smokers have a higher propensity to quit smoking compared with older women. Encouraging young smokers to quit—in addition to preventing nonsmokers from starting—may be an important facet of reducing cigarette smoking prevalence among adolescents. (*Am J Public Health.* 2002;92:71–74)

Since the mid-1950s, European women have tended to start smoking cigarettes at an earlier age than in previous generations.[1,2] Although primary prevention is the natural way to counteract these trends, paradoxically, encouraging smoking cessation also may be efficient. According to Breslau and Peterson, "The dramatic decline in the prevalence of cigarette smoking in the US since the 1960s has been primarily achieved by smokers' successful attempts to quit."[3] Pierce and Gilpin have argued that encouraging addicted adolescent smokers to quit may be more effective than attempting to prevent nonsmokers from initiating smoking.[4]

Therefore, it is important to examine whether an increased frequency of smoking cessation attempts by young people could be considered an additional indicator of the success of public health strategies designed to prevent cigarette smoking. With this perspective, we sought to determine the distribution, in a representative sample of the Geneva population, of first attempts to quit smoking among women 35 years or younger who had smoked at least 100 cigarettes and who initiated smoking at 25 years or younger. We collected more detailed information on cigarette smoking history than is usually available in large population-based surveys or cohort studies.

METHODS

Study Participants

Between January 1992 and December 1998 we conducted annual, representative surveys of the 98 000 women aged 35 to 74 years who are noninstitutionalized residents of the Canton of Geneva, Switzerland. The survey methodology is described in detail elsewhere.[5] Each survey was a random sample with age–sex–nationality strata proportional to the corresponding distributions in the Geneva population. The overall participation rate was 65% of the sampled subjects, yielding a net total sample size of 3676 women.

Cigarette Smoking History

During the in-person interview, each study participant was first classified as a "never" smoker (having never smoked or smoked fewer than 100 cigarettes in her lifetime; n=2204) or as an "ever" smoker (having smoked at least 100 cigarettes in her lifetime; n=1652). The smoking history section of the questionnaire was structured as a calendar. Initial entries were age (in years) and age at which the subject became a regular smoker. Each change, if any, in the reported daily smoking frequency or type of cigarette smoked was reported as a new entry. For each entry, the daily number of cigarettes smoked was recorded. The duration of each quitting episode of at least 1 year also was recorded.

A "past" smoker was defined as an ever smoker who had quit smoking 2 or more years before her interview (n=784). A 2-year cutoff was used because the calendar recorded years, not months, at initiation and at cessation. Thus, a 1-year difference could have ranged from 1 month (e.g., started December 1992, stopped January 1993) to 23 months (e.g., started January 1993, stopped December 1994). Similarly, a "current" smoker was defined as an ever smoker who was still smoking less than 2 years before her interview (n=868).

Similarly, for past and current smokers a quit attempt was defined as 2 or more years of smoking cessation. Up to 4 such quit attempts could be determined with the cigarette smoking history calendar. Thus, past smokers could be further classified as having made 1 to 4 quit attempts, the last of which was the "final" quit; current smokers could be further classified as having made 0 to 3 quit attempts.

Statistical Analyses

We used χ^2 tests for homogeneity of proportions to compare the distributions of smokers in 4 age groups (35–44 years, 45–54 years, 55–64 years, 65–74 years). Kaplan–Meier (product-limit) survival (or "time-to-event") analysis techniques[6] were used to estimate the cumulative probability distributions of age ("time") at smoking initiation or at first quit attempt ("event") efficiently. Analysis of age at first quit attempt was limited to young initiators—defined as being 25 years or younger at smoking initiation—and corresponded to the 88th percentile (1449/1652) of the distribution for ever smokers.

TABLE 1—Smoking Characteristics of 3676 Women, by Age Groups: Geneva, Switzerland, 1992–1998

Characteristics	Age Groups, y					P
	35–44	45–54	55–64	65–74	All	
n	1077	1194	825	580	3676	
% Never smokers	43.3	52.3	65.3	68.1	55.1	
% Past smokers	24.0	23.3	17.7	17.6	21.3	<.001[a]
% Current smokers	32.7	24.5	17.0	14.3	23.6	
% Ever smokers	56.7	47.7	34.7	31.9	44.9	<.001[b]
Age initiated smoking, y[c]	18	19	20	20	19	<.001[d]
Number of cigarettes per day[c]	13.6	12.7	12.5	10.0	12.6	<.09[e]
Duration of smoking, y[a]	17	22	29	36	21	<.001[e]
Mean number of quit attempts among ever smokers	0.86	0.83	0.80	0.78	0.83	.65[e]
Mean number of quit attempts among women who attempted to quit at least once	1.36	1.27	1.26	1.26	1.30	<.03[e]

[a]χ^2_6, never vs past vs current smokers.
[b]χ^2_3, ever vs never smokers.
[c]Median, among ever smokers only.
[d]Log-rank (χ^2 approx), 3 *df*.
[e]Kruskal–Wallis (χ^2 approx), 3 *df*.

In the absence of direct reliability checks for assessing whether the information on age at smoking initiation and at quit attempts was reproducible, we applied an indirect method proposed by Gilpin et al.[7] The method consisted of comparing the distributions of age at smoking initiation and at quitting among women from a single birth cohort (1940–1949) in each of the 7 surveys (1992 to 1998).

RESULTS

As Table 1 shows, younger women tended to initiate smoking at an earlier age ($P<.001$) and to smoke more cigarettes per day ($P<.09$) than older women. Among women who attempted to quit, the mean number of quit attempts was larger among younger women, even though older women had more time to attempt to quit ($P<.03$) .

The probability of a first quit attempt at any age among women who initiated smoking at 25 years or younger was greater among younger women than among older women ($P<.001$; see Figure 1). For example, the probabilities of first attempting to quit by 30 years of age were 50%, 38%, 30%, and 23% among women aged 35 to 44 years, 45 to 54 years, 55 to 64 years, and 65 to 74 years, respectively. Similarly, the ages at which one quarter of the respective age-group cohorts had attempted to quit smoking a first time were 24, 26, 28, and 31 years.

We also compared the probability of a first attempt to quit smoking according to age at initiation. The approximate tertiles of age-initiated-smoking groups were 11 to 17 years, 18 to 19 years, and 20 to 25 years among women who initiated smoking by age 25 or younger. The log-rank analysis (2 *df*) clearly demonstrates that the distributions of the duration of smoking until the first quit attempt were virtually identical for all 3 subgroups ($P=.64$; data not shown). Moreover, the mean numbers of quit attempts among ever smokers were 0.84, 0.95, and 0.89 ($P=.16$) for the 3 age-initiated-smoking subgroups (data not shown). The mean numbers of quit attempts were 1.27, 1.36, and 1.31, respectively ($P=.24$).

We also performed reliability checks on whether recall of age at initiation of smoking or age at first quit attempt could have been influenced by the age of the women in the study. The time-to-event analysis estimates of these probability distributions for each survey year from 1992 to 1998 for the cohort of women born between 1940 and 1949 were almost superimposed. This result suggests that recall of age at smoking initiation was reliable among women of the same cohort who were interviewed at different ages.

DISCUSSION

The current smoking epidemic in younger women appears to have distinctive characteristics, compared with the smoking pattern of older generations. Younger women tend to initiate smoking at an earlier age and smoke more often. Younger women also make more attempts to quit, however, even in their teenage years. Whether these quit attempts are successful remains elusive.[8]

Our findings are consistent with those for 91 651 married female US nurses aged 30 to 55 years in 1976, among whom the cessation rate was lowest in earlier birth cohorts[9]—although Myers et al. focused on final cessation, whereas we studied primarily first attempt to quit.

In contrast with other researchers,[3,10,11] we did not observe that young initiators tend to be more addicted. Women who initiated smoking at an earlier age did not attempt to quit a first time after a longer duration of smoking or attempt to quit less often than women who initiated smoking at a later age. We may have failed to find a relationship between age at smoking initiation and probability of first attempting to quit because, as

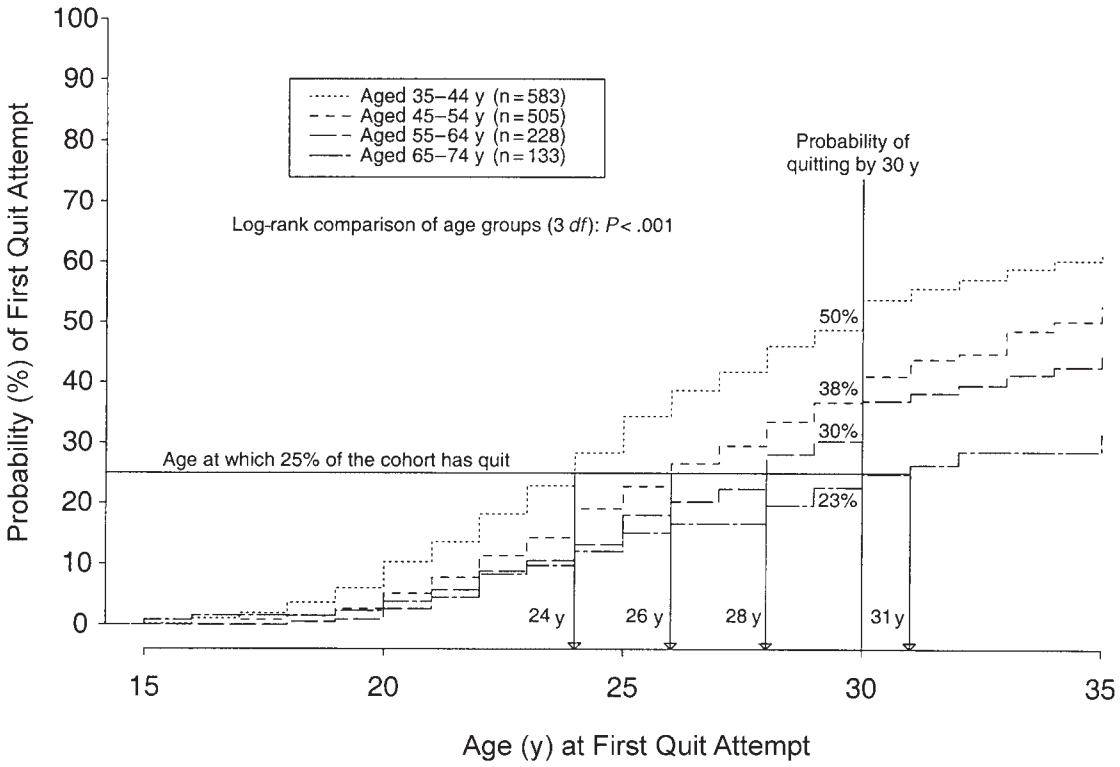

FIGURE 1—Probability of a first quit attempt among women ever smokers who initiated when 25 years or younger, stratified by age groups: Geneva, Switzerland, 1992–1998.

noted above, Geneva women rarely (<5%) reported initiating smoking at a very young age—that is, before 15 years.

A strength of the study was a clearly defined and enumerated target population, allowing us to confirm the representativeness of the sample relative to the age–sex–nationality distribution in the population. We also were able to rule out a possible selection bias related to crude smoking categories by obtaining the smoking status of subjects who refused to participate.[12] Detailed smoking histories were obtained by trained interviewers from a representative sample of the general population of the Canton of Geneva. Because older women in the study had had more time to attempt to quit than younger study women, we also restricted the comparisons to events that occurred only through 35 years of age; all study subjects were at least that age. It also was reassuring to observe, in agreement with previous reports,[7,13,14] the lack of substantial differential reliability of recall of age at initiation among women of the same cohort interviewed as much as 7 years apart.

The study was limited by the fact that the youngest women in the study were aged 35 years at interview. We therefore do not have information on the most recent trends in cigarette smoking in younger adults.

We can speculate about the reasons for the increasing propensity to quit by younger women. Quitting may be more successful in the younger group because of the availability of new tools for quitting, such as nicotine gum and patches. Younger generations may be more aware of the health risks of smoking. The older cohorts may have tried just as often—quitting for 3 weeks, 3 months, 1 year—without following through. In any case, this observed phenomenon may have major implications for prevention. Current antismoking efforts should seek to prevent teenagers from initiating smoking, encourage current smokers to quit, and help quitters maintain their smoking cessation. ■

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Contributors

A. Morabia and J.-C. Rielle designed the study. A. Morabia and M.S. Bernstein supervised the data collection and analysis. M.C. Costanza performed the statistical analyses. All authors contributed to the drafting of the final version.

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