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Health of Former Cigarette Smokers Aged 65 and Over: United States, 2018

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Abstract

Objective—This report describes select measures of health among former cigarette smokers aged 65 and over.

Methods—Data from the 2018 National Health Interview Survey were used to describe the health of former cigarette smokers aged 65 and over by estimating the percentage with fair or poor health, chronic obstructive pulmonary disease (COPD), four or more chronic conditions, and limitations in social participation. The health measures were adjusted for age, sex, race and Hispanic origin, and education and presented by the number of years that the former smoker smoked. The number of years smoked was estimated from responses to questions on the age the former smoker started to smoke regularly and how long ago they quit smoking cigarettes.

Results—Among adults aged 65 and over, 49.4% of men and 30.6% of women were former cigarette smokers. Almost one-fourth of former smokers smoked for 40 years or more. Controlling for sociodemographic characteristics, former smokers reported higher levels of fair or poor health, COPD, and four or more chronic conditions compared with never smokers and similar levels of fair or poor health, four or more chronic conditions, and limitations in social participation compared with current smokers. Former smokers had higher levels of fair or poor health, COPD, four or more chronic conditions, and social participation limitations as their years of smoking increased.

Conclusions—Smoking cessation has been shown to be beneficial at any age. However, even after quitting smoking, the length of time a person smoked is reflected in current health measures among people aged 65 and over.

Keywords: smoking • health status • COPD • National Health Interview Survey (NHIS)

Introduction

Cigarette smoking is the leading preventable cause of death in the United States (1). It is estimated

that nearly 500,000 deaths in the United States each year are due to cigarette smoking. Smoking increases the risk of heart disease, stroke, cancer, lung disease, and other conditions (1,2).

Reducing cigarette smoking by adults is a high-priority health issue, as noted by its inclusion as a Healthy People 2020 Leading Health Indicator (3). Efforts to encourage smokers to quit smoking emphasize both immediate and long-term benefits. For example, cardiovascular risks are estimated to decline within 1 year of quitting smoking, and the risk of stroke may be reduced within 5 years (1,2,4). Many studies focus on current smokers and on efforts to encourage them to quit, but health risks may remain even after successful smoking cessation (1,5,6). Former smokers represented about 21% of all adults and nearly 40% of adults aged 65 and over in 2018 (7). Older adults have higher levels of chronic conditions associated with cigarette smoking than adults under age 65 (8). Information about the smoking history of former smokers aged 65 and over can contribute to knowledge of overall older adult health.

This report describes health characteristics of former cigarette smokers aged 65 and over. The number of years smoked was estimated indirectly from smoking history questions. Former smokers are compared with current smokers and never smokers on four key measures of health. The relationship between the four health measures and



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number of years smoked, adjusted for age, sex, race and Hispanic origin, and education, is also examined.

Methods

Data source

Data in this report are from the 2018 National Health Interview Survey (NHIS). NHIS is a multipurpose, cross-sectional health survey of the U.S. civilian noninstitutionalized population, based on a stratified multistage sample of U.S. households (9,10). Data are collected in person at the respondent's home using computer-assisted personal interviewing, but follow-ups for completing interviews may be conducted over the telephone if needed. The survey consists of both a core set of questions that remain relatively unchanged from year to year and supplemental questions that are asked periodically. Through 2018, within each household, information is collected at the family level (Family Core), then a sample adult from each family is randomly selected to answer additional questions about his or her individual health and health behaviors, such as smoking (Sample Adult Core). The health measures described in this report come from both of these survey components. An estimate of the mean number of cigarettes smoked among former smokers was calculated from the 2015 National Health Interview Survey Cancer Control Supplement, the latest year available for this information, to help provide context for the results (11).

Cigarette smoking status

Cigarette smoking status was determined using two questions. All sample adult respondents aged 18 and over were first asked, "Have you smoked at least 100 cigarettes in your entire life?" Respondents answering "yes" were then asked, "Do you now smoke cigarettes every day, some days, or not at all?" Current smokers were defined as those who responded "yes" to having smoked at least 100 cigarettes in their lifetime and said that they currently smoke, either every day or some days. Former smokers were defined as those who answered

"yes" to having smoked at least 100 cigarettes in their lifetime but reported that they currently do not smoke at all. Never smokers were those who answered "no" to the question about having smoked at least 100 cigarettes in their lifetime. The definition of former smokers in this report is based on cigarette smoking only and does not include use of other tobacco products.

Number of years smoked

Respondents who indicated that they ever smoked 100 cigarettes were asked, "How old were you when you first started to smoke fairly regularly?" Former smokers were asked, "How long has it been since you quit smoking cigarettes?" From the answers to these two questions, along with current age, the number of years smoked was estimated. First, the age at which a former smoker quit smoking was calculated as:

Age quit smoking = current age – years since quitting smoking.

Then, the number of years smoked was calculated as:

Number of years smoked = age quit smoking – age started smoking.

Former smokers who were missing information on the age they started smoking regularly or how long ago they quit smoking (about 2% of unweighted cases) were excluded from the analysis of health by number of years smoked but were included in overall comparisons with current smokers and never smokers. The number of years smoked was classified into four categories, based on the quartile distribution of number of years smoked for former smokers aged 65 and over.

Mean number of cigarettes smoked

Estimates of the mean number of cigarettes smoked per day among former smokers, overall and by number of years smoked, were calculated from the 2015 NHIS Cancer Control Supplement. In 2015, sample adult former smokers were asked to report the number of cigarettes they usually smoked per day during the

time when they smoked regularly. These results are shown in the [Technical Notes](#) and referenced in the discussion of the results.

Health characteristics

Health characteristics were estimated from questions on respondent-assessed health, chronic conditions, and limitations in social participation. Health status, measured as the percentage of respondents in fair or poor health, was based on responses to the question, "Would you say your health in general is excellent, very good, good, fair, or poor?" Respondents who reported that they had ever been told by a doctor or other health professional that they had emphysema, chronic obstructive pulmonary disease (COPD), or that they had chronic bronchitis in the past 12 months were considered to have COPD. This definition may differ from other studies but has been shown to be a better measure than one based on a single question on COPD alone (12). Estimates of having 4 or more chronic conditions are based on responses to questions on 10 conditions: hypertension, coronary heart disease, stroke, diabetes, cancer, arthritis, hepatitis, COPD, weak or failing kidneys in the past 12 months, and current asthma. This definition of multiple chronic conditions has been used in previous studies and is a conservative estimate because it captures only 10 out of the 20 chronic conditions commonly used to characterize respondents with chronic conditions (13). Respondents who were considered to be limited in social participation answered "very difficult" or "can't do at all" to either of the two questions, "By yourself, and without using any special equipment, how difficult is it for you to ... go out to things like shopping, movies, or sporting events? Participate in social activities such as visiting friends, attending clubs and meetings, going to parties?"

Sociodemographic characteristics

Sociodemographic characteristics of former smokers presented in this report include: age (65–74 and 75 and over), sex (men and women), race and Hispanic

origin (Hispanic, non-Hispanic white, and non-Hispanic black), and educational level (less than high school, high school diploma or GED, some college, and college and above). These characteristics were reported by the family respondent, although age and sex were verified by the sample adult at the beginning of their interview.

Statistical analyses

Estimates in this report were calculated using the sample adult sampling weights and are representative of the civilian noninstitutionalized population of the United States aged 65 and over. Point estimates, and estimates of their variances, were calculated using SAS-callable SUDAAN version 11.0.0 (14,15), a software package that accounts for the complex sample design of NHIS. This report first presents descriptive statistics on the sociodemographic and health characteristics of the population aged 65 and over by smoking status (former, current, and never). Then the sociodemographic and health characteristics of former smokers are described by the number of years smoked (10 or less, more than 10 but less than 25, 25 or more but less than 40, and 40 or more). Significance of differences between any two estimates was determined by standard two-tailed *t* tests at the 0.05 level using point estimates and their standard errors. Adjusted odds ratios and adjusted percentages were generated from logistic regression models that include age, sex, race and Hispanic origin, and education. Adjusted

percentages are the predicted marginal probabilities multiplied by 100, estimated for the average person in a given category of years smoked after adjusting for all other variables included in the model.

In this report, data presentation standards for proportions are based on a minimum denominator sample size and on the absolute and relative widths of a confidence interval calculated using the Korn–Graubard method (modified Clopper–Pearson) for complex surveys. All estimates presented meet the National Center for Health Statistics (NCHS) guidelines for presentation of proportions (16). Tests of significance for the trend of years smoked follow NCHS guidelines for analysis of trends (17).

Results

Smoking status

In 2018, 39.1% of adults aged 65 and over were former smokers, compared with 8.4% who currently smoke and 52.5% who never smoked. Adults aged 65–74 were more likely than adults aged 75 and over to be current smokers (11.0% compared with 4.7%). Among men aged 65 and over, 49.4% were former smokers while among women in the same age group, 30.6% were former smokers. A higher percentage of women aged 65 and over never smoked (62.1%) compared with men (40.7%) (Table A).

Sociodemographic characteristics

Former smokers were more likely to be 65–74 versus 75 and over and men versus women (Table 1). A large majority of former smokers were non-Hispanic white adults (81.5%), and overall former smokers were fairly evenly distributed among educational levels of high school diploma or GED or more. The distribution of selected sociodemographic characteristics among adults aged 65 and over differed by smoking status. Compared with the other smoking groups, former smokers were similar in age to never smokers and both groups were older than current smokers: 77.9% of current smokers were aged 65–74 compared with 56.8% and 59.5% of former and never smokers, respectively. Among never smokers, 65.1% were women compared with 43.1% of former smokers and 47.2% of current smokers. Former smokers and never smokers were more likely to have graduated from college (27.9% and 34.2%, respectively) compared with current smokers (15.3%).

Health characteristics

Figure 1 shows the percentage of adults aged 65 and over with each of the four health characteristics by smoking status, adjusted for age, sex, race and Hispanic origin, and education. The unadjusted estimates are shown in Table 1. After accounting for sociodemographic characteristics, former smokers and current smokers were more likely to report fair or poor health compared with never smokers

Table A. Distribution of population aged 65 and over, by cigarette smoking status: United States, 2018

Age and sex	Total (unweighted <i>n</i> = 7,272)	Former smoker (unweighted <i>n</i> = 2,817)	Current smoker (unweighted <i>n</i> = 672)	Never smoker (unweighted <i>n</i> = 3,783)
	Percent (95% confidence interval)			
65 and over	100.0	39.1 (37.7–40.5)	8.4 (7.7–9.2)	52.5 (51.0–54.0)
65–74	100.0	37.0 (35.2–38.7)	11.0 (9.9–12.1)	52.1 (50.1–54.0)
75 and over	100.0	42.2 (40.0–44.5)	4.7 (3.9–5.5)	53.1 (50.9–55.4)
Men:				
65 and over	100.0	49.4 (47.1–51.7)	9.9 (8.8–11.2)	40.7 (38.5–43.0)
65–74	100.0	45.6 (42.9–48.4)	12.6 (11.0–14.4)	41.8 (39.0–44.6)
75 and over	100.0	55.7 (52.1–59.3)	5.4 (4.2–6.9)	39.0 (35.5–42.5)
Women:				
65 and over	100.0	30.6 (29.0–32.3)	7.2 (6.4–8.2)	62.1 (60.3–64.0)
65–74	100.0	29.3 (27.1–31.5)	9.5 (8.2–11.0)	61.3 (58.8–63.7)
75 and over	100.0	32.5 (30.1–35.0)	4.2 (3.3–5.3)	63.3 (60.8–65.8)

NOTE: Figures may not add to 100.0 because of rounding.

SOURCE: NCHS, National Health Interview Survey.

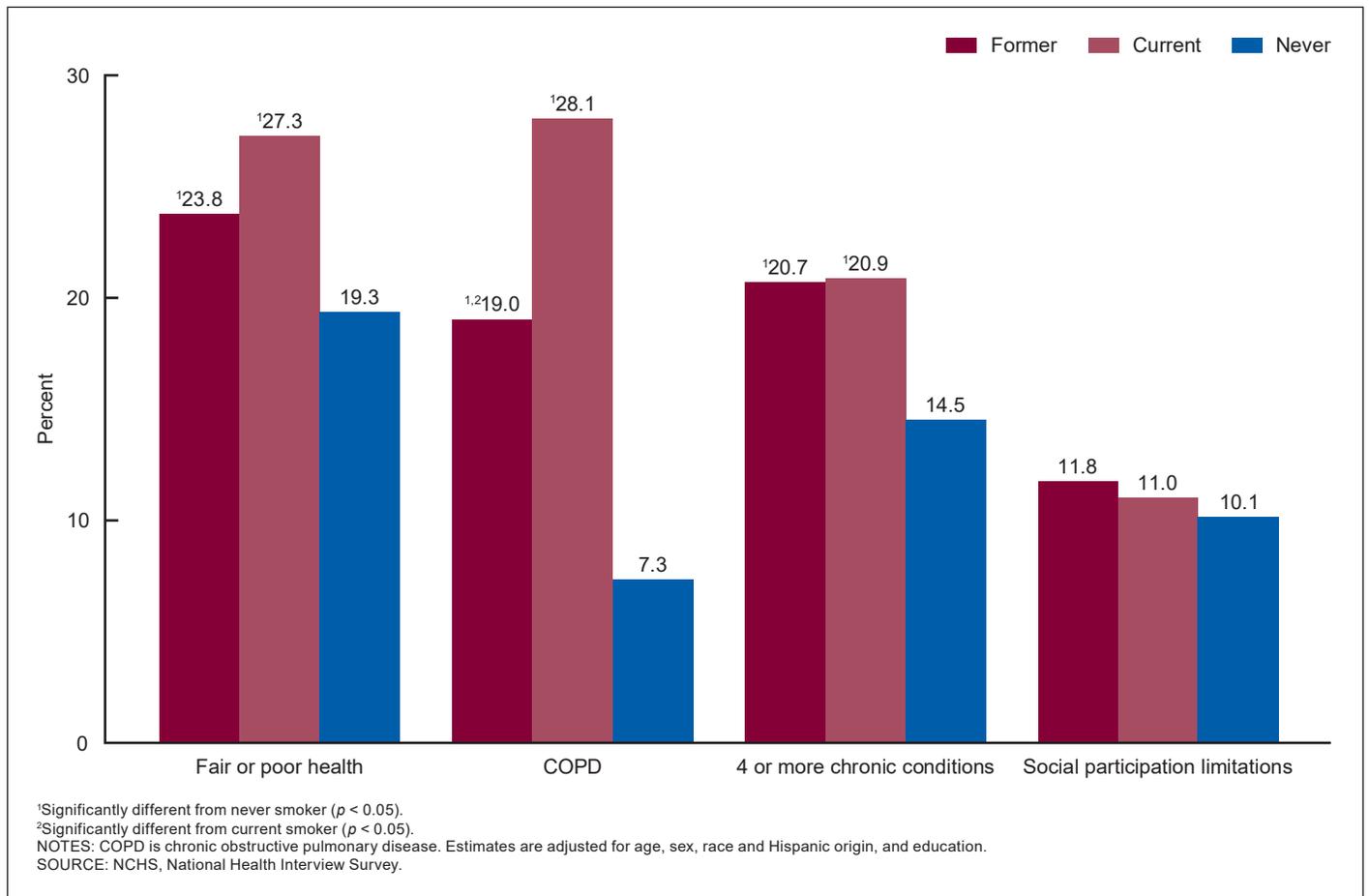


Figure 1. Model-adjusted percentage of adults aged 65 and over with fair or poor health, COPD, 4 or more chronic conditions, and social participation limitations, by cigarette smoking status: United States, 2018

(23.8% and 27.3% compared with 19.3%, respectively). No significant differences were seen in fair or poor health status between former smokers and current smokers. Former smokers were less likely to report COPD (19.0%) than current smokers (28.1%) but were more likely to report COPD than never smokers (7.3%). No significant differences between former and current smokers in the percentage who reported

four or more chronic conditions were seen, but both estimates were significantly higher than the percentage among never smokers (20.7% and 20.9% compared with 14.5%). After controlling for sociodemographic characteristics, no significant differences were seen in the percentage who reported limitations in social participation according to smoking status.

Number of years smoked

Among former smokers aged 65 and over, more than one-half smoked for 25 or more years: 23.5% smoked for 40 or more years and 31.0% smoked for 25–40 years. In addition, 27.6% smoked for more than 10 years but less than 25, while nearly one-fifth (18.0%) smoked for 10 years or less (Table B). No significant differences were seen in the distribution of years smoked by sex.

Table 2 shows the demographic and health characteristics of former smokers by the number of years smoked. No significant sex or race and Hispanic origin differences were observed across categories of years smoked. For example, the percentage of women in each category ranged from 42% to 44% and the percentage of non-Hispanic white people ranged from 80% to 84%. Those who smoked for 10 years or less were younger than those who smoked for 40 years or more (62.0% were 65–74 compared with 54.3%). Education was

Table B. Distribution of former cigarette smokers aged 65 and over, by number of years smoked: United States, 2018

Years smoked	All (unweighted $n = 2,717$)	Men (unweighted $n = 1,448$)	Women (unweighted $n = 1,269$)
Percent (95% confidence interval)			
10 or less	18.0 (16.3–19.8)	17.6 (15.3–20.2)	18.5 (16.2–21.1)
More than 10 but less than 25	27.6 (25.5–30.0)	27.3 (24.6–30.1)	28.0 (25.1–31.0)
25 or more but less than 40	31.0 (28.9–33.1)	31.2 (28.5–34.1)	30.7 (27.7–33.8)
40 or more	23.5 (21.6–25.4)	23.9 (21.4–26.6)	22.9 (20.3–25.6)
Total	100.0 ...	100.0 ...	100.0 ...

... Category not applicable.

NOTES: Estimates in this table are based on respondents who were former smokers with valid responses on the age they first smoked fairly regularly and time since quitting smoking. Figures may not add to 100.0 because of rounding.

SOURCE: NCHS, National Health Interview Survey.

also related to the number of years smoked. Among former smokers who smoked for 10 years or less, 13.0% had less than a high school education compared with 19.8% of former smokers who smoked for 40 years or more. Conversely, 37.4% of former smokers who smoked for 10 years or less had graduated from college compared with 18.4% of former smokers who smoked for 40 years or more.

Among former smokers aged 65 and over, the number of years smoked is highly correlated with how long ago the person stopped smoking. About three-fourths of former smokers aged 65 and over started smoking by age 20 (data not shown); consequently, those who smoked the fewest number of years quit longer ago. For example, among former smokers aged 65 and over who smoked for 10 years or less, 93.1% quit smoking 40 or more years ago. Conversely, among those who smoked for 40 years or more, 37.4% quit within the last 5 years and an

additional 57.3% quit more than 5 but less than 25 years ago (Table 2).

Figure 2 shows the model-adjusted percentages of the four health measures by number of years smoked. There is a significant positive trend for each indicator. Among former smokers aged 65 and over, there were higher levels of fair or poor health, COPD, four or more chronic conditions, and social participation limitations as years of smoking increased. For example, controlling for sociodemographic factors, 28.5% of former smokers who smoked for 40 years or more reported fair or poor health compared with 17.8% of former smokers who smoked for 10 years or less. A higher proportion of individuals who smoked for 40 years or more reported COPD, four or more chronic conditions, and social participation limitations (32.7%, 26.1%, and 14.2%, respectively) than did those who smoked for 10 years or less (9.1%, 18.1%, and 8.6%, respectively). The results of positive significant trends by years smoked were

similar for all four health measures when the models used the midpoint of the intervals to account for the uneven size of the years smoked intervals (data not shown).

Discussion

Levels of current cigarette smoking in 2018 were lowest among adults aged 65 and over compared with younger ages (7). However, nearly 40% of people in this age group reported being a former smoker. In addition, most former smokers aged 65 and over smoked for many years: almost 55% smoked for 25 years or more and nearly one-fourth smoked for 40 years or more. The smoking history of former smokers appears to be relevant to their current health. After adjusting for differences in sociodemographic factors (age, sex, race and Hispanic origin, and educational level), older adult former smokers were more likely to be in fair or poor health, have COPD, and

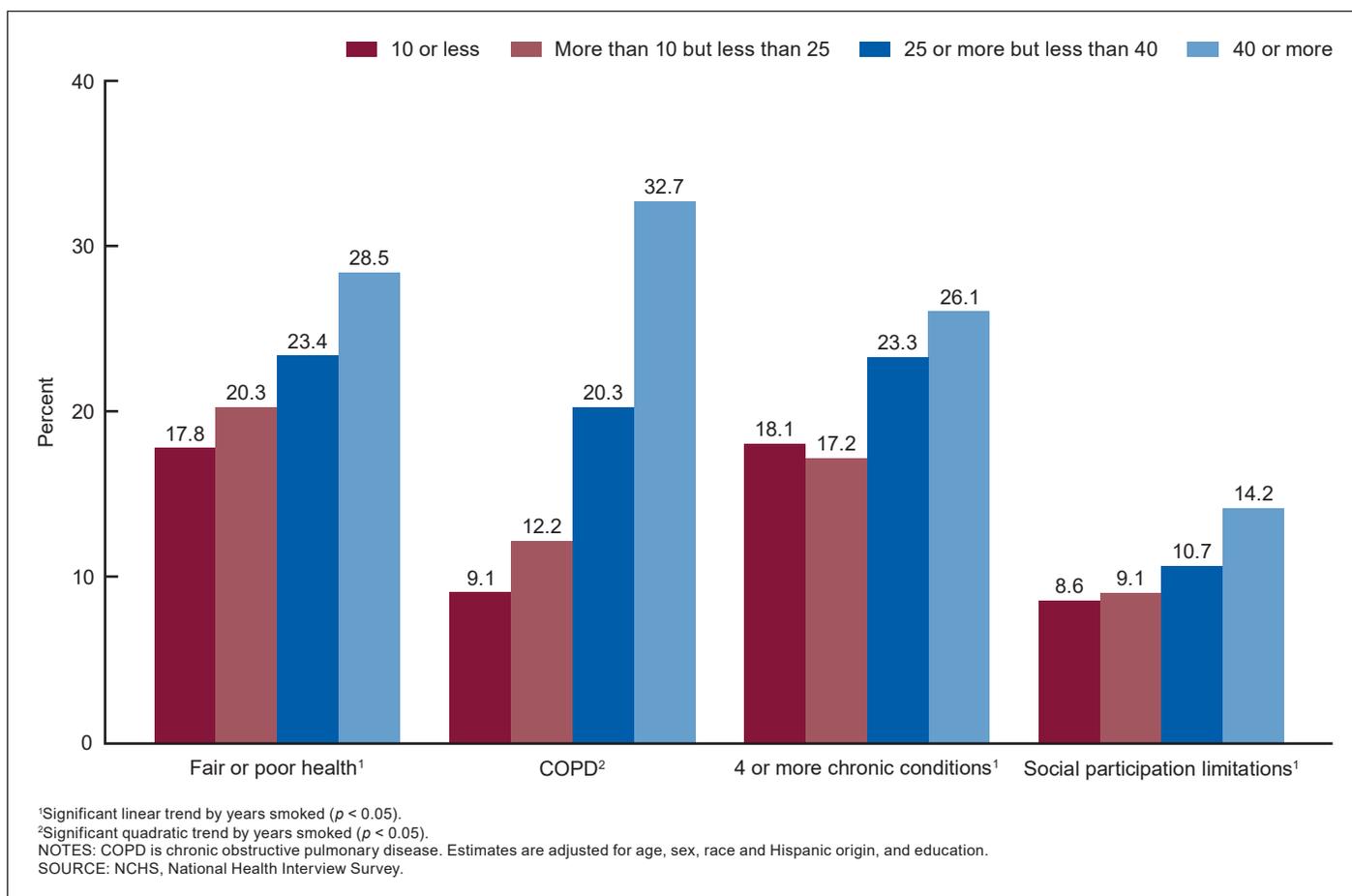


Figure 2. Model-adjusted percentage of former cigarette smokers aged 65 and over with fair or poor health, COPD, 4 or more chronic conditions, and social participation limitations, by number of years smoked: United States, 2018

have four or more chronic conditions than never smokers. They had similar levels of fair or poor health, four or more chronic conditions, and social participation limitations as current smokers of the same age. There was a significant positive relationship between the number of years smoked and worse health, measured by fair or poor health, COPD, having four or more chronic conditions, and being limited in social participation. The positive trend results of four or more chronic conditions with years of smoking may be influenced by the inclusion of COPD among the 10 conditions. However, it is difficult to isolate the effect of a single condition in this measure when nearly all older former smokers who reported COPD also reported other conditions. Even after quitting smoking, the number of years smoked is reflected in current health measures among people aged 65 and over.

There are several limitations to this analysis. First, the results presented do not control for how long ago a former smoker quit smoking. There may be independent effects of time since quitting on health among older adult former smokers. Measured at one point in time, it is difficult to separate the impact of number of years smoked from time since quitting because they are so highly correlated. Quitting smoking longer ago necessarily results in fewer total years smoked. For example, among former smokers who smoked for 10 years or less, about 93% quit 40 or more years ago. Conversely, among those who smoked for 40 years or more, almost 95% quit less than 25 years ago, with 37% quitting within the past 5 years (Table 2).

Other studies using longitudinal data can more easily show how the time since quitting smoking may affect health. For example, a study using NHIS data linked to mortality data showed that stopping smoking at ages 55–64 added an estimated 4 years to life expectancy compared with current smokers (18). Another study examined this issue among a sample of adults aged 70–82 in 2004–2005, followed by linkage to mortality data through 2011. In that cohort, the relative risk of dying was 0.77 among people who quit smoking at ages 60–69 compared with current smokers;

however, those who quit smoking 1–4 years before the 2004–2005 questionnaire had a higher risk of dying than current smokers since quitting smoking at older ages is often in response to acute illness and recent quitters reported worse health than current smokers (19). While it is possible that a larger sample or different cut points of smoking duration would yield more information on the relationship between health and time since quitting, the current analysis cannot determine if time since quitting has a separate effect on health apart from years smoked.

A second limitation is that the 2018 NHIS does not provide information on the intensity of smoking for former smokers. Former smokers who smoked lightly are analyzed together with former smokers who smoked heavily. Studies have shown a relationship between number of cigarettes smoked per day and mortality among older smokers (19). The estimated mean number of cigarettes smoked daily among former smokers in 2015, the last year of NHIS data on this topic available, is shown in the [Technical Notes](#). Overall in 2015, the mean number of daily cigarettes smoked among former smokers aged 65 and over was higher for men than women (19.6 compared with 15.2). Among former smokers aged 65 and over in 2015, those who smoked for 40 years or more reported a higher average number of cigarettes daily compared with those who smoked for 10 years or less (18.9 compared with 13.7). Thus, assuming the relationship between number of years smoked and mean number of cigarettes daily is similar in 2018, some of the effect of number of years smoked on health may be compounded by a higher average number of cigarettes smoked per day.

Another limitation is that the number of years smoked is an estimate that does not account for quit attempts or other substantial fluctuations in the pattern of cigarette smoking over time. The estimate of number of years smoked is based on the age that the former smoker reported starting smoking and an estimate of the age they stopped smoking, derived from how long ago they reported stopping smoking. The 2018 NHIS did not ask former smokers directly about quit attempts; thus, periods when the

respondent may have stopped smoking temporarily in an attempt to quit are not accounted for in this estimate.

Additionally, the results here do not account for use of other tobacco products, including e-cigarettes. Among former smokers aged 65 and over, about 40% reported ever smoking a regular cigar, cigarillo, or little filtered cigar, but only roughly 3% reported currently smoking cigars (data not shown). There is no information in the survey on the length of time that other tobacco products were used, so it is not possible to estimate how their use overlaps with past patterns of cigarette smoking.

Finally, the results in this report are also likely affected by mortality selection. One's smoking status over time may affect the likelihood of survival; the former and current smokers analyzed here may be healthier than those who did not survive to ages 65 and over. Thus, the relationship between smoking status, years smoked, and current health reported may not represent the experience of all older adults who ever smoked.

Quitting smoking has been shown to be beneficial for health at any age (1). Even after quitting, however, the length of time a person smoked is reflected in the health of adults aged 65 and over. This is consistent with existing research showing that the earlier a smoker quits, the lower their risk of adverse health outcomes (1). While cigarette smoking has declined in recent decades for all age groups (20), it is likely that the experience of starting and quitting smoking varies among people of different ages, as cultural norms and policies about smoking have changed over time. In 2018, among adults aged 65 and over, nearly one-half of men and one-third of women used to smoke, and among former smokers, about 55% smoked for 25 years or more. Health behaviors earlier in life affect health at older ages. Considering smoking history among former smokers may provide useful information when evaluating overall health status.

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Table 1. Selected characteristics of adults aged 65 and over, by cigarette smoking status: United States, 2018

Characteristic	Former smoker (unweighted <i>n</i> = 2,817)	Current smoker (unweighted <i>n</i> = 672)	Never smoker (unweighted <i>n</i> = 3,783)
Percent (95% confidence interval)			
Age			
65–74	56.8 (54.5–59.0)	77.9 (74.2–81.3)	59.5 (57.6–61.4)
75 and over	43.2 (41.0–45.5)	22.1 (18.7–25.8)	40.5 (38.6–42.4)
Sex			
Men	56.9 (54.7–59.0)	52.8 (48.3–57.3)	34.9 (33.1–36.7)
Women	43.1 (41.0–45.3)	47.2 (42.7–51.7)	65.1 (63.3–66.9)
Race and Hispanic origin ¹			
Hispanic	6.5 (5.0–8.3)	8.0 (5.5–11.1)	10.6 (9.2–12.3)
Non-Hispanic white	81.5 (79.2–83.7)	75.8 (71.4–79.9)	72.6 (70.3–74.9)
Non-Hispanic black	7.7 (6.5–9.1)	12.6 (9.5–16.3)	9.7 (8.4–11.1)
Education			
Less than high school	13.7 (12.1–15.4)	19.0 (15.7–22.6)	15.5 (13.9–17.2)
High school diploma or GED	28.8 (26.9–30.7)	32.7 (28.5–37.0)	25.3 (23.5–27.2)
Some college	29.7 (27.8–31.6)	33.1 (28.6–37.8)	25.1 (23.3–26.8)
College and above	27.9 (25.9–30.0)	15.3 (12.3–18.7)	34.2 (32.1–36.2)
Fair or poor health			
Yes	23.4 (21.4–25.4)	28.6 (24.6–32.8)	19.9 (18.3–21.6)
No	76.6 (74.6–78.6)	71.4 (67.2–75.4)	80.1 (78.4–81.7)
COPD			
Yes	18.8 (17.1–20.9)	29.3 (25.4–33.4)	7.3 (6.4–8.4)
No	81.2 (79.4–82.9)	70.7 (66.6–74.6)	92.7 (91.6–93.6)
4 or more chronic conditions			
Yes	21.3 (19.6–23.1)	21.5 (18.1–25.1)	14.0 (12.7–15.4)
No	78.7 (76.9–80.4)	78.5 (74.9–81.9)	86.0 (84.6–87.3)
Social participation limitations			
Yes	11.5 (10.1–13.1)	10.5 (7.8–13.8)	10.5 (9.3–11.7)
No	88.5 (86.9–89.9)	89.5 (86.2–92.2)	89.5 (88.3–90.7)

¹Other races and multiple race are included in total estimates but are not shown separately because of small sample sizes.

NOTES: COPD is chronic obstructive pulmonary disease. Figures may not add to 100.0 because of rounding.

SOURCE: NCHS, National Health Interview Survey.

Table 2. Selected characteristics of former cigarette smokers aged 65 and over, by number of years smoked: United States, 2018

Characteristic	Years smoked			
	10 or less (unweighted n = 478)	More than 10 but less than 25 (unweighted n = 743)	25 or more but less than 40 (unweighted n = 824)	40 or more (unweighted n = 672)
Age				
	Percent (95% confidence interval)			
65–74	62.0 (56.7–67.0)	58.5 (54.1–62.8)	56.1 (52.2–60.0)	54.3 (49.9–58.7)
75 and over.	38.0 (33.0–43.3)	41.5 (37.2–45.9)	43.9 (40.0–47.8)	45.7 (41.3–50.1)
Sex				
Men.	56.0 (50.6–61.3)	56.6 (52.3–60.8)	57.7 (53.7–61.6)	58.3 (53.8–62.7)
Women.	44.0 (38.7–49.4)	43.4 (39.2–47.7)	42.3 (38.4–46.3)	41.7 (37.3–46.2)
Race and Hispanic origin ¹				
Hispanic	6.0 (3.7–9.1)	5.6 (3.5–8.4)	6.2 (4.1–8.9)	7.9 (5.1–11.5)
Non-Hispanic white.	83.9 (79.6–87.6)	83.3 (79.7–86.5)	81.1 (77.4–84.4)	80.4 (76.1–84.2)
Non-Hispanic black.	6.5 (4.3–9.4)	7.0 (5.2–9.2)	8.1 (6.1–10.6)	7.9 (5.6–10.7)
Education				
Less than high school.	13.0 (9.7–16.9)	8.5 (6.1–11.4)	13.0 (10.3–16.0)	19.8 (16.5–23.5)
High school diploma or GED	22.0 (17.7–26.9)	26.7 (23.1–30.6)	30.2 (26.7–34.0)	33.5 (29.5–37.7)
Some college	27.5 (22.5–33.0)	31.4 (27.6–35.3)	31.6 (28.1–35.4)	28.3 (24.5–32.3)
College and above	37.4 (32.3–42.8)	33.4 (29.6–37.5)	25.2 (21.8–28.8)	18.4 (15.0–22.2)
Years since quitting smoking				
5 or less	0.2 (0.0–1.1)	0.7 (0.1–2.4)	1.9 (1.0–3.2)	37.4 (32.8–42.1)
More than 5 but less than 25	2.1 (0.9–4.0)	3.8 (2.5–5.5)	44.7 (40.7–48.9)	57.3 (52.5–62.0)
25 or more but less than 40	4.6 (2.7–7.3)	48.8 (44.2–53.3)	47.8 (43.7–51.9)	5.3 (3.6–7.5)
40 or more	93.1 (90.2–95.4)	46.7 (42.4–51.1)	5.6 (3.9–7.6)	0.0 (0.0–0.5)
Fair or poor health				
Yes	16.8 (13.3–20.9)	19.4 (16.2–23.0)	23.9 (20.5–27.5)	30.7 (26.5–35.2)
No.	83.2 (79.1–86.7)	80.6 (77.0–83.8)	76.1 (72.5–79.5)	69.3 (64.8–73.5)
COPD				
Yes	8.9 (6.1–12.4)	11.8 (9.1–14.9)	20.4 (17.4–23.7)	33.9 (29.6–38.3)
No.	91.1 (87.6–93.9)	88.2 (85.1–90.9)	79.6 (76.3–82.6)	66.1 (61.7–70.4)
4 or more chronic conditions				
Yes	17.3 (13.6–21.4)	16.4 (13.6–19.6)	23.9 (20.4–27.8)	27.6 (23.6–31.9)
No.	82.7 (78.6–86.4)	83.6 (80.4–86.4)	76.1 (72.2–79.6)	72.4 (68.1–76.4)
Social participation limitations				
Yes	7.9 (5.5–10.9)	8.2 (6.0–10.9)	11.2 (8.6–14.3)	16.2 (13.0–19.8)
No.	92.1 (89.1–94.5)	91.8 (89.1–94.0)	88.8 (85.7–91.4)	83.8 (80.2–87.0)

¹Other races and multiple race are included in total estimates but are not shown separately because of small sample sizes.

NOTES: COPD is chronic obstructive pulmonary disease. Estimates in this table are based on respondents who were former smokers with valid responses on the age they first smoked fairly regularly and time since quitting smoking. Figures may not add to 100.0 because of rounding.

SOURCE: NCHS, National Health Interview Survey.

Technical Notes

Table I. Mean number of cigarettes smoked per day among former cigarette smokers aged 65 and over, by age, sex, and number of years smoked: United States, 2015

Characteristic	Years smoked				
	All former smokers (unweighted <i>n</i> = 2,815)	10 or less (unweighted <i>n</i> = 445)	More than 10 but less than 25 (unweighted <i>n</i> = 816)	25 or more but less than 40 (unweighted <i>n</i> = 846)	40 or more (unweighted <i>n</i> = 708)
Age	Mean (95% confidence interval)				
65 and over	17.7 (17.0–18.4)	13.7 (12.1–15.3)	17.3 (16.0–18.5)	19.5 (18.2–20.8)	18.9 (17.8–20.0)
65–74	17.9 (17.0–18.7)	14.6 (12.7–16.5)	17.5 (16.1–19.0)	19.4 (17.7–21.1)	19.3 (17.6–21.0)
75 and over	17.5 (16.5–18.5)	11.6 (8.8–14.5)	16.9 (14.9–18.9)	19.7 (17.5–21.8)	18.5 (16.8–20.1)
Sex and age					
Men	19.6 (18.6–20.6)	16.4 (14.0–18.8)	18.9 (17.4–20.3)	21.3 (19.4–23.3)	20.8 (19.0–22.6)
65–74	19.5 (18.3–20.7)	17.1 (14.2–20.0)	19.2 (17.4–20.9)	20.3 (17.9–22.7)	21.4 (18.7–24.0)
75 and over	19.7 (18.3–21.2)	14.7 (10.3–19.1)	18.4 (15.9–20.9)	22.7 (19.4–26.0)	20.3 (17.9–22.6)
Women	15.2 (14.3–16.0)	10.2 (8.3–12.1)	14.9 (12.9–17.0)	17.2 (15.6–18.8)	16.6 (15.0–18.1)
65–74	15.8 (14.7–16.8)	11.2 (8.7–13.7)	15.2 (12.8–17.6)	18.2 (16.2–20.2)	17.2 (15.0–19.5)
75 and over	14.3 (12.8–15.7)	8.4 (5.5–11.2)	14.5 (11.0–17.9)	15.9 (13.5–18.2)	15.6 (13.4–17.7)

NOTE: Estimates in this table are based on answers to the following question asked of former smokers: "When you last smoked fairly regularly, how many cigarettes did you usually smoke per day?"
SOURCE: NCHS, National Health Interview Survey, Cancer Control Supplement, 2015.

Table II. Adjusted odds ratios for selected health measures: United States, 2018

Characteristic	Fair or poor health	COPD	4 or more chronic conditions	Social participation limitations
Figure 1 odds ratio (95% confidence interval)				
Age				
65–74	1.00 ...	1.00 ...	1.00 ...	1.00 ...
75 and over	1.41 (1.23–1.63)	1.22 (1.03–1.45)	1.46 (1.26–1.70)	2.32 (1.92–2.80)
Sex				
Men	1.00 ...	1.00 ...	1.00 ...	1.00 ...
Women	1.05 (0.91–1.21)	1.34 (1.12–1.60)	0.90 (0.77–1.04)	1.35 (1.11–1.65)
Race and Hispanic origin ¹				
Hispanic	1.64 (1.30–2.06)	0.80 (0.59–1.10)	0.77 (0.58–1.02)	1.29 (0.93–1.78)
Non-Hispanic white	1.00 ...	1.00 ...	1.00 ...	1.00 ...
Non-Hispanic black	2.22 (1.82–2.70)	0.87 (0.67–1.15)	1.19 (0.95–1.49)	1.68 (1.27–2.22)
Education				
Less than high school	1.00 ...	1.00 ...	1.00 ...	1.00 ...
High school diploma or GED	0.51 (0.42–0.63)	0.82 (0.64–1.05)	0.70 (0.56–0.88)	0.58 (0.45–0.76)
Some college	0.40 (0.33–0.49)	0.80 (0.62–1.02)	0.70 (0.56–0.87)	0.44 (0.33–0.57)
College and above	0.25 (0.20–0.31)	0.45 (0.34–0.60)	0.39 (0.31–0.50)	0.21 (0.15–0.28)
Smoking status				
Current smoker	1.62 (1.28–2.04)	5.07 (4.03–6.38)	1.57 (1.24–1.99)	1.11 (0.79–1.55)
Former smoker	1.33 (1.14–1.55)	3.02 (2.50–3.65)	1.56 (1.33–1.82)	1.19 (0.98–1.45)
Never smoker	1.00 ...	1.00 ...	1.00 ...	1.00 ...
Figure 2 odds ratio (95% confidence interval)				
Age				
65–74	1.00 ...	1.00 ...	1.00 ...	1.00 ...
75 and over	1.37 (1.10–1.70)	1.06 (0.85–1.33)	1.52 (1.21–1.91)	1.83 (1.36–2.47)
Sex				
Men	1.00 ...	1.00 ...	1.00 ...	1.00 ...
Women	0.95 (0.76–1.18)	1.31 (1.04–1.65)	0.87 (0.69–1.09)	1.20 (0.90–1.59)
Race and Hispanic origin ¹				
Hispanic	1.27 (0.81–1.97)	0.55 (0.32–0.95)	0.74 (0.46–1.19)	1.21 (0.67–2.21)
Non-Hispanic white	1.00 ...	1.00 ...	1.00 ...	1.00 ...
Non-Hispanic black	2.42 (1.76–3.32)	0.75 (0.47–1.19)	1.17 (0.81–1.69)	1.57 (0.99–2.49)
Education				
Less than high school	1.00 ...	1.00 ...	1.00 ...	1.00 ...
High school diploma or GED	0.62 (0.44–0.88)	0.81 (0.57–1.14)	0.63 (0.46–0.86)	0.60 (0.40–0.91)
Some college	0.42 (0.30–0.59)	0.76 (0.54–1.08)	0.63 (0.46–0.87)	0.48 (0.31–0.74)
College and above	0.34 (0.23–0.49)	0.47 (0.32–0.69)	0.41 (0.29–0.58)	0.21 (0.13–0.35)
Years smoked				
10 or less	0.85 (0.59–1.21)	0.72 (0.46–1.14)	1.06 (0.76–1.49)	0.94 (0.58–1.53)
More than 10 but less than 25	1.00 ...	1.00 ...	1.00 ...	1.00 ...
25 or more but less than 40	1.21 (0.91–1.62)	1.85 (1.34–2.55)	1.47 (1.10–1.97)	1.21 (0.80–1.84)
40 or more	1.60 (1.17–2.18)	3.58 (2.54–5.06)	1.72 (1.26–2.34)	1.70 (1.14–2.54)

... Category not applicable.

¹Other races and multiple race are included in total estimates but are not shown separately because of small sample sizes.

NOTE: COPD is chronic obstructive pulmonary disease.

SOURCE: NCHS, National Health Interview Survey.

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