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Smoking cessation attitudes and practices among cancer survivors – United States, 2015

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Abstract

Purpose—The prevalence of smoking among cancer survivors is similar to the general population. However, there is little evidence on the prevalence of specific smoking cessation behaviors among adult cancer survivors.

Methods—The 2015 National Health Interview Survey (NHIS) data were analyzed to examine the prevalence of smoking cessation behaviors and use of treatments among cancer survivors. Weighted self-reported prevalence estimates and 95% confidence intervals were calculated using a sample of 2527 cancer survivors.

Results—Among this sample of US cancer survivors, 12% were current smokers, 37% were former smokers, and 51% were never smokers. Compared with former and never smokers, current smokers were younger (< 65 years), less educated, and less likely to report being insured or Medicaid health insurance ($p < 0.01$). More males were former smokers than current or never smokers. Current smokers reported wanting to quit (57%), a past year quit attempt (49%), or a health professional advised them to quit (66%). Current smokers reported the use of smoking cessation counseling (8%) or medication (38%).

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Conclusions—Even after a cancer diagnosis, about one in eight cancer survivors continued to smoke. All could have received advice to quit smoking by a health professional, but a third did not.

Implications for Cancer Survivors—Health professionals could consistently advise cancer survivors about the increased risks associated with continued smoking, provide them with cessation counseling and medications, refer them to other free cessation resources, and inform them of cessation treatments covered by their health insurance.

Keywords

Smoking; Smoking cessation; Cancer survivor; Medication; National survey

Background

Smoking continues to be the leading cause of preventable disease and death in the USA [1]. From 2009 to 2013, approximately 167,000 men and women died of cigarette smoking-attributable cancers each year [2], accounting for approximately 30% of total cancer deaths each year [2, 3]. Previous studies have shown the prevalence of smoking among persons with a history of cancer (cancer survivors) is less than the general population [4–15], however this varies by cancer type [12, 14] and some demographic characteristics [8, 10–13]. A cancer survivor is any person diagnosed with cancer, from the time of initial diagnosis until death [16]. Cigarette smoking, the main form of tobacco use among adults, is harmful for cancer survivors in several ways [1]. Continued smoking after a cancer diagnosis is associated with adverse health outcomes, including increased all-cause mortality and increased cancer-specific mortality [1, 17–20], negative effects on cancer treatment and worsened chemotherapy toxicity [21–23], and increased risk for a second malignancy at the same site or a different site [1, 24–30]. Quitting smoking after a cancer diagnosis can improve a patient’s prognosis and can increase long-term survival [1, 31–40].

Several effective treatments are available to assist smokers with quitting, including individual, group, and telephone counseling and seven FDA-approved cessation medications [41, 42]. Use of these treatments increases the chances of successful quitting (compared to use of a placebo, minimal, or no intervention) [42–45]. Using cessation counseling and medication together is more effective than using either alone [41], in part because counseling can address proper use of cessation medication. In a national sample modest increases in self-reported past year quit attempts, receipt of advice to quit smoking from a health professional, use of cessation counseling and/or medication, and recent smoking cessation success among adult smokers was reported between 2000 and 2015 [46]. Previous studies examining tobacco use among adults diagnosed with tobacco-related cancers [7] recommended improved patient-provider discussions concerning targeted, evidence-based smoking cessation treatments [47]. However, there is little evidence on the prevalence of specific smoking cessation behaviors among adult cancer survivors.

The purpose of this study was to examine the prevalence of smoking cessation behaviors among adult US cancer survivors.

Methods

Data from the Sample Adult (aged ≥ 18 years) Core Questionnaire and Cancer Control Supplement of the 2015 National Health Interview Survey (NHIS) were analyzed to examine smoking cessation behaviors among cancer survivors [48]. The NHIS [48] is the largest nationally representative, cross sectional, in-person household health survey conducted annually with civilian non-institutionalized populations in the USA. Those excluded from the survey [48] include persons in long-term care facilities, persons on active duty with the Armed Forces, persons incarcerated, and US nationals living in foreign countries. The NHIS Sample Adult Core Questionnaire is collected from one adult in each household. In order to increase the precision of estimates of the black, Hispanic, and Asian populations, 2015 NHIS sample design oversampled black, Hispanics, and Asian persons. Further, when black, Hispanic, or Asian persons aged 65+ years were present, they had an increased chance of being selected. The final NHIS sample size and response rate for adults in 2015 was 33,672 (participation rate = 55%).

The NHIS core questionnaire ascertains cancer history annually by asking respondents if a doctor or health professional ever told them they had cancer or any malignancy. Respondents answering yes were included. Those with an unknown cancer history, who refused to answer the question, or who reported having non-melanoma skin cancer were excluded. All cancer types were combined because there were not enough respondents to examine smoking and smoking cessation behaviors by individual cancer types.

Current smokers were adults who smoked 100 cigarettes in their lifetime and said they currently smoked cigarettes every day (daily) or some days (non-daily). Former smokers were adults who smoked at least 100 cigarettes in their lifetime but said they currently did not smoke. Recent former smokers were a subset of former smokers who reported quitting smoking in the past 12 months. Never smokers were adults who never smoked a cigarette or who smoked fewer than 100 cigarettes in their lifetime. Respondents were classified as having a “past year quit attempt” if they reported: (1) being current cigarette smokers (including non-daily smokers) who had stopped smoking for more than 1 day in the past 12 months because they were trying to quit or (2) former smokers who quit completely during the past 12 months.

NHIS administers supplement questionnaires periodically to provide additional information on subjects already covered in the core questionnaire or on topics not covered in other parts. In 2015, NHIS administered a Cancer Control Supplement asking all current smokers whether they would like to quit smoking completely. Current smokers who tried to quit during the past year and former smokers who quit during the past 2 years also were asked whether they had used cessation treatments when trying to quit. Cessation treatments provided on the survey were collapsed into two groups: counseling and/or medication. Counseling included one-on-one counseling, stop smoking clinic, class, or support group, and telephone help or quit-line. Medications included nicotine replacement therapies (nicotine patch, nicotine gum/lozenge, nicotine-containing nasal spray/inhaler), varenicline, and bupropion. Current and recent former smokers who had seen or spoken to a doctor,

dentist, or other health professional in the past 12 months were asked whether that health professional advised them to quit smoking.

We examined the following demographic characteristics stratified by lifetime history of cancer: sex, age, race/ethnicity (white non-Hispanic, black non-Hispanic, other non-Hispanic [Asian, American Indian, Alaskan Native, multiple race], Hispanic [any race]), education (high school or less [≤ 2 years no diploma/GED/high school diploma], some college [no degree/associate degree], college [undergraduate/graduate degree]), marital status (married/living with partner, never married, previously married [divorced/separated/widowed]), and health insurance status. The age categories examined (18–24, 25–44, 45–64, 65+ years) are consistent with other national studies of smoking prevalence in adult populations [49]. We combined Asian, American Indian, Alaskan Native, and multiple races because of insufficient sample. Information on health insurance coverage came from NHIS-recoded data using a hierarchical assignment [48] that grouped persons into five mutually exclusive categories: (1) “private” (private insurance and dual eligibility [among persons 65 years and older]), (2) “Medicaid” (among persons aged less than 65 years), (3) “Medicare” (Medicare only or Medicare-Advantage among persons 65 years and older), (4) “other” (military, other government program), or (5) “uninsured.”

Survey responses were weighted to reflect the probability of selection into the sample and survey non-response. SAS (SAS Institute, Cary, NC) Enterprise Guide and SAS-callable SUDAAN (Research Triangle Institute, North Carolina) were used to account for complex NHIS sampling design and to yield population estimates. Weighted self-reported prevalence estimates and 95% confidence intervals were calculated using the sample of 2527 cancer survivors with valid smoking history (total weighted sample $N= 15,869,217$). Chi-square test statistics were calculated with a threshold of $p < 0.05$. All estimates shown meet the National Center for Health Statistics (NCHS) standard of reliability (relative standard error less than or equal to 30%).

Results

Among cancer survivors, 12% were current smokers, 37% were former smokers, and 51% were never smokers (Table 1). More males were former smokers than current or never smokers, and more females were current smokers than former smokers. Among cancer survivor current smokers, the highest prevalence was among non-elderly persons (less than aged 65 years) (70%). Fewer cancer survivors 65 years or older were current smokers (28%) than former (67%) and never smokers (53%). Cancer survivors who were current smokers less often reported a college degree (11%) than cancer survivors who were former (32%) and never smokers (36%). Cancer survivors who were current smokers reported having Medicaid (30%) or being uninsured (10%) more often than cancer survivors who were former (6% and 2%, respectively) or never (6% and 3%, respectively) smokers.

In 2015, 57% of cancer survivors who were current smokers reported they would like to completely quit smoking cigarettes (Table 2). Interest in quitting smoking was higher among cancer survivors aged 45–64 years (66%) than those aged 65+ years (41%) and higher among survivors with some college (65%) or a college degree (76%) than those with a high

school education level (49%). The prevalence of interest in quitting smoking was higher among cancer survivors with Medicaid insurance (79%) than those with private insurance (51%).

Almost half (49%) of cancer survivors who were current smokers reported making a past year quit attempt. The prevalence of a past year quit attempt was higher among non-Hispanic black cancer survivors (67%) than non-Hispanic white cancer survivors (48%). A past year quit attempt was also higher among cancer survivors who were previously married (58%) than those who were married (47%) or never married (34%).

Sixty-six percent of cancer survivors who were current smokers reported a health professional advised them to quit smoking in the past 12 months. Receiving advice to quit appeared to decrease with increasing age and education.

Among cancer survivors who smoked, 41% reported using cessation counseling or medication when trying to quit, with 8% using counseling and 38% using medication (Table 3). Less than 8% reported using both counseling and medication; however, an exact estimate could not be presented due to unmet relative standard error. The use of medication when trying to quit did not differ between male and female cancer survivors.

Discussion

During 2015, a little more than half of cancer survivors who smoked were interested in quitting smoking, and approximately half had attempted to quit in the previous year. In this study, nearly seven of ten cancer survivors who smoked and visited a health professional in the previous year were advised to quit smoking. Among cancer survivors who attempted to quit smoking, almost half used counseling or medication. Previous research suggests that persons diagnosed with nontobacco-related cancers or tobacco-related cancers other than lung, head, or neck are more likely to continue smoking (than persons with tobacco-related cancers) [14, 50–52]. One study found that survivors of these cancers may not attribute their cancer to a history of smoking [50]. Cancer patient education improvement [53] and integration of smoking cessation into oncology care may help increase interest in quitting smoking among cancer survivors [54, 55]. While a large majority of oncology providers ask about tobacco use, they may be less likely to be involved in discussing treatment options [56–58].

Approximately one third of cancer survivors who smoked and visited a health professional in the past 12 months reported that they did not recall being advised to quit smoking. Previous research has demonstrated that health professionals may miss opportunities to advise cancer survivors to quit smoking and/or to assist them with cessation [59, 60]. Healthcare professionals can reinforce the importance of smoking cessation for cancer survivors during each and every visit to ensure the patient is aware of their individual risks and benefits associated with smoking cessation. Three recent surveys of oncology providers have demonstrated that a large majority ask about tobacco use (~ 90%), intention to quit (~ 80%), and advising patients to quit (81–83%); however, they are less likely to be actively involved in cessation treatment [56–58]. Potential barriers that might deter health

professionals from advising cancer survivors who smoke include time constraints, lack of training and knowledge, no or limited reimbursement, and concerns about patient's state of mind and potential reactions [57, 61–63].

Our findings indicate that advice given to patients about smoking habits may be influenced by patients' age. This is consistent with other studies that have found age and the presence of multiple health conditions influences advice that is given [64]. However, older smokers may benefit from specially tailored and more intensive cessation interventions and can still derive substantial health and quality-of-life benefits from quitting. Reinforcing these messages among patients and providers may help all adult cancer survivor smokers receive smoking cessation recommendations and treatment.

The use of cessation counseling and medications can increase the likelihood of successfully quitting smoking, particularly when used together [41–45, 53]. Less than half of cancer survivors who smoked reported using cessation counseling or medication when trying to quit, and less than 8% reported using both counseling and medication. This is consistent with previous population studies which have found that the majority of quit attempts tend to be unassisted [46, 65]. Of oncology providers surveyed, approximately 37–44% reported discussing medications to assist with smoking cessation [56–58]. Most demographic differences among cancer survivors regarding interest in quitting and past year quit attempts were similar to those reported in previous studies [46, 66] of adult smokers overall. The differences observed by age, insurance status, and race may be partially driven by socio-economic factors (e.g., lower income and education) that have been linked with high smoking prevalence among cancer survivors [4].

Public health programs can use these findings to develop and implement interventions specifically aimed at adult cancer survivor smokers. The Centers for Disease Control and Prevention's (CDC) National Comprehensive Cancer Control Program (NCCCP) awardees work in communities across the nation to prevent cancer promote healthy lifestyles and enhance cancer survivors' quality of life [16]. NCCCP awardees can seek out opportunities to partner with health professionals and tobacco control partners to implement smoking cessation interventions for cancer survivors of all ages, as well as effective population-based strategies to prevent and reduce tobacco use [16, 67]. NCCCP awardees also can work with their local cancer coalitions to highlight the importance of collecting information on current cigarette smoking status and smoking pack years in their medical record systems in order to target and monitor tobacco use among high-risk populations, including cancer survivors. Programs can work with primary care clinicians treating cancer survivors to integrate smoking cessation into the cancer survivorship care plan, counsel survivors to stop tobacco use, and refer survivors who smoke to cessation counseling and medication and other forms of cessation assistance. The National Comprehensive Cancer Network *Clinical Practice Guidelines in Oncology for Smoking Cessation* (updated annually) [53] and US Public Health Service *Guideline for Treating Tobacco Use and Dependence* [42] provide effective clinical tobacco cessation treatments that can be used in this capacity. The National Cancer Institute has also funded supplements to Cancer Centers to promote and sustain tobacco cessation treatment programs to routinely address cessation services for cancer survivors [68].

Health system changes that can be enacted by public health programs including the NCCCP are the integration of tobacco screening and tobacco dependence treatment into routine clinical care to increase clinician delivery of evidence-based cessation interventions [42]. These changes both prompt clinicians to intervene with smokers and make it easier for them to do so. The use of provider reminders, dedicated staff to deliver cessation interventions and distributing related tasks among the healthcare team, better documentation of interventions, and performance feedback are also ways in which providers can increase quality tobacco cessation care [42]. These changes will likely require collaboration among many local stakeholders in order to change attitudes and practice.

This study had some limitations. First, because NHIS is population-based, the number of persons participating who were cancer survivors and who were current and former smokers was relatively small. This small sample size limited depth of specific analyses related to cessation behaviors among cancer survivors and analyses by type of cancer. Second, smoking status, cessation behaviors, and cancer history were self-reported and were therefore subject to social-desirability bias; however, self-reported smoking behaviors [69] have been shown to be reliable. Lastly, our findings are not generalizable to populations (i.e., residing in long-term care facilities, active-duty military, incarcerated, and US nationals living abroad) not included in the NHIS sample.

Our findings indicate even after a cancer diagnosis, about one in eight cancer survivors continued to smoke. Cancer survivors may not be aware of how continued smoking after a cancer diagnosis negatively impacts their health. The CDC NCCCP supports increasing knowledge and availability of evidence-based tobacco cessation services among cancer survivors [16, 70]. Partnerships between cancer coalitions, healthcare providers, and facilities may increase utilization of evidence-based cessation treatments and successful cessation, since cancer coalitions are uniquely positioned in communities [70]. Health professionals, including cancer specialists, can help cancer survivors who smoke quit by consistently calling attention to the increased risks [18–28] associated with continued smoking in clear, strong, and personalized terms [1]. Healthcare providers also could consistently advise cancer survivors who smoke to quit, provide them with, or refer them to, cessation counseling, and furnish them with cessation medication unless contraindicated. Providers can also refer cancer survivors who smoke to other cessation resources available free of charge to the general public, including state quit-lines. Future studies of smoking cessation behaviors focusing on cancer survivor populations would be helpful to inform additional public health approaches to increase smoking cessation among this population.

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Table 1
Smoking status among adult cancer survivors by selected characteristics, NHIS 2015

	Total		Smoking status ^b				Chi-Sq ^c p		
	%	95%CI	Current %	95%CI	Former %	95%CI		Never %	95%CI
Total ^d	100.0		12.1	(10.6–13.8)	37.1	(34.6–39.7)	50.8	(48.1–53.5)	
Sex									
Male	40.0	(37.4–42.7)	37.8	(30.5–45.6)	48.6	(44.4–52.9)	34.3	(30.9–37.8)	<0.001
Female	60.0	(57.3–62.6)	62.2	(54.4–69.5)	51.4	(47.1–55.6)	65.7	(62.2–69.1)	
Age (years)									
18–24	0.6	(0.3–1.1)	<i>h</i>	<i>h</i>	<i>h</i>	<i>h</i>	<i>h</i>	<i>h</i>	
25–44	10.1	(8.5–11.9)	25.0	(18.8–32.3)	4.7	(3.1–7.1)	10.2	(8.1–12.8)	<0.001
45–64	34.5	(32.1–37.0)	45.2	(37.9–52.8)	28.4	(24.2–33.1)	36.4	(33.2–39.8)	
65+	54.9	(52.2–57.5)	28.2	(22.0–35.3)	66.5	(61.8–70.9)	52.8	(49.1–56.5)	
Race/ethnicity									
White, non-Hispanic	88.7	(87.2–90.1)	88.2	(82.9–92.0)	91.0	(88.8–92.8)	87.4	(85.1–89.3)	
Black, non-Hispanic	8.2	(7.0–9.6)	9.7	(6.4–14.6)	7.6	(6.0–9.6)	8.1	(6.3–10.4)	<0.001
Other, non-Hispanic	3.0	(2.3–4.0)	<i>h</i>	<i>h</i>	<i>h</i>	<i>h</i>	4.5	(3.3–6.1)	
Hispanic ^d	6.9	(5.8–8.1)	<i>h</i>	<i>h</i>	4.8	(3.3–6.8)	8.4	(6.7–10.5)	<0.02
Education ^e									
High school or less	39.2	(36.6–41.9)	55.1	(48.0–62.0)	37.6	(33.5–41.9)	36.3	(32.4–40.4)	
Some college	29.6	(27.3–32.0)	33.7	(27.8–40.2)	30.7	(26.9–34.7)	28.1	(24.6–32.0)	<0.001
College	31.2	(28.6–33.8)	11.2	(7.2–17.1)	31.7	(27.6–36.2)	35.5	(31.7–39.6)	
Marital status ^f									
Married	62.6	(60.0–65.2)	58.0	(50.5–65.1)	62.3	(58.2–66.3)	64.3	(60.8–67.6)	
Previously married	30.0	(27.9–32.3)	32.1	(25.6–39.4)	32.3	(28.8–36.0)	27.8	(24.9–30.9)	0.1
Never married	7.3	(6.1–8.8)	9.9	(6.4–15.0)	5.4	(3.5–8.3)	7.9	(6.2–10.0)	
Health insurance ^g									
Private	58.5	(55.8–61.0)	38.7	(31.9–45.9)	56.3	(51.7–60.9)	64.9	(61.2–68.4)	

	Total		Smoking status ^b				Former		Never		Chi-Sq ^c p
	%	95%CI	Current		%		%		%		
			%	95%CI	%	95%CI	%	95%CI	%	95%CI	
Medicaid	8.8	(7.3–10.5)	30.4	(23.9–37.7)	5.5	(3.9–7.7)	5.9	(4.3–8.1)	19.4	(16.7–22.4)	< 0.01
Medicare	20.8	(19.0–22.8)	13.1	(9.0–18.6)	25.4	(21.9–29.2)	19.4	(16.7–22.4)	7.2	(5.6–9.1)	
Other	8.6	(7.2–10.1)	7.6	(4.8–11.8)	10.9	(8.2–14.2)	7.2	(5.6–9.1)	2.7	(1.6–4.4)	
Uninsured	3.4	(2.5–4.5)	10.3	(6.8–15.2)	2.0	(1.1–3.5)	2.7	(1.6–4.4)			

^a Respondents aged 18+ years with valid cancer history/smoking status

^b Never smokers—have not smoked a cigarette/smoked fewer than 100 cigarettes in lifetime; former smokers—smoked ≥ 100 cigarettes in lifetime, but currently did not smoke; current smokers—smoked 100 cigarettes in lifetime and currently smoked cigarettes every/some days

^c Test for significant differences across demographic strata between current, former, and never smokers

^d Hispanics can be any race

^e High school or less (<12 years no diploma, GED, diploma); some college (no degree/associate degree); college (undergraduate/graduate degree)

^f Married and living with a partner were grouped together; divorced, separated, and widowed were grouped as previously married

^g Private insurance includes private insurance and dual eligibility among persons 65+ years; Medicaid is among persons < 65 years; Medicare includes Medicare only or Medicare-Advantage (among persons 65+ years)

^h Estimate not presented due to unmet relative standard error (less than or equal to 30%)

Table 2
Prevalence of interest in quitting smoking, past year quit attempt, and receiving a health professional’s advice to quit smoking among adult cancer survivor smokers, by selected characteristics, NHIS, 2015

	Interested in quitting smoking ^a		Past year quit attempt ^b		HP advised quit smoking past year ^c	
	%	95% CI	%	95% CI	%	95% CI
Total	57.0	(49.5–64.3)	49.0	(42.3–55.9)	65.7	(59.3–71.5)
Sex						
Male	59.1	(45.4–71.5)	51.3	(38.9–63.5)	66.2	(55.3–75.7)
Female	55.7	(46.5–64.5)	47.8	(39.3–56.3)	65.2	(57.0–72.6)
Age (years)						
18–24	<i>h</i>		<i>h</i>		<i>h</i>	
25–44	60.2	(42.8–75.4)	46.1	(31.4–61.5)	70.7	(55.0–82.6)
45–64	65.6	(54.3–75.4)	49.3	(39.0–59.7)	64.8	(54.2–74.1)
65+	41.2	(29.3–54.3)	49.9	(38.5–61.4)	63.4	(52.0–73.6)
Race/ethnicity						
White, non-Hispanic	57.1	(49.1–64.7)	48.2	(40.8–55.6)	65.5	(58.6–71.9)
Black, non-Hispanic	67.8	(50.0–81.6)	67.4	(48.4–82.0)	65.6	(49.5–78.8)
Other, non-Hispanic	<i>h</i>		<i>h</i>		<i>h</i>	
Hispanic ^d	<i>h</i>		<i>h</i>		<i>h</i>	
Education ^e						
High school or less	49.1	(38.7–59.6)	45.0	(35.3–55.0)	68.8	(59.4–76.8)
Some college	64.5	(52.5–74.8)	55.2	(44.7–65.2)	64.5	(54.5–73.4)
College	75.5	(51.9–89.8)	51.3	(31.5–70.8)	55.9	(36.6–73.6)
Marital status ^f						
Married	61.1	(50.1–71.0)	46.5	(36.8–56.5)	67.7	(58.3–75.8)
Previously married	53.6	(42.1–64.8)	57.7	(47.1–67.6)	60.5	(50.5–69.7)
Never married	44.4	(24.0–66.9)	33.6	(19.2–52.0)	73.9	(54.8–86.9)
Health insurance ^g						
Private	50.7	(38.7–62.7)	50.7	(40.1–61.2)	61.3	(50.3–71.2)

	Interested in quitting smoking ^a	Past year quit attempt ^b	HP advised quit smoking past year ^c
	%	%	%
	95% CI	95% CI	95% CI
Medicaid	78.7 (66.3–87.3)	49.0 (36.1–62.1)	72.2 (60.2–81.6)
Medicare	<i>h</i>	<i>h</i>	63.8 (45.5–78.8)
Other	<i>h</i>	<i>h</i>	62.1 (42.5–78.5)
Uninsured	<i>h</i>	<i>h</i>	<i>h</i>

^aCurrent smokers who reported they wanted to stop smoking completely, were aged 18+ years with valid cancer history/smoking status

^bCurrent smokers who reported stopping smoking for more than 1 day during the past 12 months because they were trying to quit smoking, and former smokers who quit during the past year (aged 18 years or older with a valid cancer history/smoking status)

^cReceived advice from medical doctor, dentist, or other health professional to quit smoking or to quit using tobacco, among current and former cigarette smokers (who quit in the past 12 months); limited to current and former smokers who seen a doctor, dentist or health professional in the past year, and aged 18 years or older with a valid cancer history/smoking status

^dHispanics can be any race

^eHigh school or less (<12 years no diploma, GED, diploma); some college (no degree/associate degree); college (undergraduate/graduate degree)

^fMarried and living with partner were grouped together; divorced, separated, and widowed were grouped as previously married

^gPrivate insurance includes private insurance and dual eligibility among persons 65+ years; Medicaid is among persons < 65 years; Medicare includes Medicare only or Medicare-Advantage (among persons 65+ years)

^hEstimate not presented due to unmet relative standard error (less than or equal to 30%)

Prevalence of use of counseling and medication for cessation among adult cancer survivors, by selected characteristics, NHIS 2015

Table 3

	Used counseling ^{a, d}		Used medication ^b		Used counseling and/or medication	
	%	95% CI	%	95% CI	%	95% CI
Total ^c	7.8 ^d	(4.6–13.0)	37.7	(29.5–46.8)	40.7	(32.5–49.6)
Sex						
Male	_e		39.6	(25.4–55.8)	41.1	(26.9–56.9)
Female	_e		36.4	(25.8–48.6)	40.5	(29.6–52.5)

^aUsed one-on-one counseling, stop-smoking clinic, class, or support group, and/or telephone help/quit-line during the past year

^bUsed nicotine replacement therapies (i.e., nicotine patch, nicotine gum or lozenge, nicotine-containing nasal spray or inhaler), varenicline, and/or bupropion during the past year

^cAmong current smokers (tried to quit smoking ≥1 day during the past year) and former smokers (quit in past 2 years) and aged 18+ years with a valid cancer history/smoking status

^dLess than 8% of adult cancer survivors reported the use of both counseling and medication (exact estimate not presented due to standard error less than or equal to 30%)

^eEstimate not presented due to unmet relative standare error (less than or equal to 30%)