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Higher Prevalence of Health-Risk Factors Among US Adults With Unmet Health Care Needs Due to Cost, 2016

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Abstract

Context: Adults with unmet health care needs (UHCN) due to cost have fewer opportunities to receive behavioral counseling in clinical settings, which may be associated with a higher likelihood of having health-risk behaviors.

Objective: This study assessed associations between UHCN and health-risk factors.

Design/Setting: We used 2016 Behavioral Risk Factor Surveillance System data to calculate age-adjusted weighted prevalence of 5 health-risk factors by UHCN and insurance status and to assess the association of UHCN with these factors using multivariable logistic regression.

Participants: US adults aged 18 to 64 years who participated in the survey (N = 301 035).

Main Outcome Measures: Five health-risk factors: obesity, current cigarette smoking, excessive alcohol use, sleeping less than 7 hours per 24-hour period, and no leisure-time physical activity within the past month.

Results: In 2016, among adults aged 18 to 64 years, 11.2% of those with insurance and 40.1% of those without insurance (both age-adjusted) had UHCN. In both study populations, compared with adults with no UHCN, adults reporting UHCN were more likely to be a current cigarette smoker, report excessive alcohol use, and sleep less than 7 hours per 24-hour period. The prevalence of 3 or more health-risk factors was higher among adults with UHCN than among adults without UHCN (adults with insurance: adjusted prevalence ratio = 1.40; 95% confidence interval = 1.33-1.48; adults without insurance: adjusted prevalence ratio = 1.39; 95% confidence interval = 1.27-1.53).

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Conclusions: Unmet health care needs was associated with more health-risk factors regardless of insurance status. Addressing cost barriers to behavioral counseling may be one approach to consider when seeking to reduce health-risk behaviors among high-risk populations.

Keywords

health behavior; health care costs; health insurance; insurance coverage

The longitudinal study of Alameda County (California) first identified 5 health behaviors that were associated with lower mortality: never smoking, engaging in regular physical activity, no or moderate alcohol use, sleeping for 7 hours or more per night, and maintaining a normal body weight.[1] Adoption of these health behaviors could reduce the risk of chronic conditions. Previous studies also found that individuals had an increased risk of all-cause mortality if they reported multiple health-risk behaviors.[1,2] However, only 6% of adults had none of these health-risk behaviors, and adults younger than 65 years were more likely to report 4 or more of these health-risk behaviors than adults 65 years and older in the United States in 2013.[3]

Preventive screenings and medical counseling, which are often provided as part of an insurance-covered visit with a health care practitioner, are essential sources of information that can help patients address health-risk behaviors.[4] For instance, when previously uninsured adults were provided health care and health coaching through an innovative health plan, they reported improved health status and health-related behaviors.[5] However, when intensive behavioral counseling with more extended counseling and specialized treatments is required for weight control and smoking cessation, cost may become a major barrier even among the insured.[6]

Following enactment of the Patient Protection and Affordable Care Act in 2010, the National Health Interview Survey showed that the percentage of uninsured adults aged 18 to 64 years dropped from 20.4% in 2013 to 16.3% in 2014[7] and continued to drop to 12.8% in 2015.[8] Nonetheless, an estimated 24.5 million adults (12.4%) aged 18 to 64 years remained uninsured in 2016.[9] Although health care coverage has increased following Affordable Care Act, very few studies have assessed the impact of unmet health care needs (UHCN) due to cost on health-risk factors, including among adults with insurance. The study objective, therefore, is to assess the association between UHCN and the 5 health-risk factors identified from the Alameda County study among US adults aged 18 to 64 years with and without health care coverage using a nationwide health-risk behavioral survey.

Methods

Data source

This cross-sectional study used data from the 2016 Behavioral Risk Factor Surveillance System (BRFSS), an ongoing random-digit-dialed telephone (landline and cell phone) survey of noninstitutionalized US adults aged 18 years and older. The BRFSS collects information about health-related behaviors, chronic conditions, and health care access. In 2016, the median response rate for the 50 states and District of Columbia was 47.0%.[10]

Study populations

We examined UHCN and health-risk factors by health insurance status, which included adults aged 18 to 64 years with insurance (n = 269 719) and without insurance (n = 31 316) from 50 states and District of Columbia. Health insurance status was determined by the question, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service?”

Outcome variables

We examined 4 health-risk behaviors and 1 disease related to health-risk behaviors (hereafter referred to as 5 health-risk factors). Obesity was defined as having a body mass index of 30 kg/m^2 or greater based on self-reported weight and height. Current cigarette smoking was defined as having smoked at least 100 cigarettes in one’s lifetime and currently smoking daily or some days. Excessive alcohol use was defined for adults aged 21 years or older who were binge drinkers (men having ≥5 drinks and women having ≥4 drinks on 1 occasion) or heavy drinkers (men having ≥15 drinks and women having ≥8 drink per week) in the past month, or pregnant women or adults aged 18 to 20 years who had 1 or more drinks of alcohol in the previous 30 days.[11] Short sleep duration[12] was defined as less than 7 hours based on a response to the question, “On average, how many hours of sleep do you get in a 24-hour period?” No leisure-time physical activity during the past month was defined according to the question, “During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?” The number of health-risk factors was then counted and categorized into 0, 1, 2, and 3 or more.

Explanatory variables

The explanatory variables included UHCN, sociodemographic characteristics, and self-reported general health status. Unmet health care needs was defined as an affirmatory response to the question, “Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?” Sociodemographic characteristics included age at interview (18 to 34 years, 35 to 44 years, 45 to 54 years, and 55 to 64 years), sex, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, non-Hispanic American Indian or Alaska Native, non-Hispanic native Hawaiian or Pacific Islander, non-Hispanic Asian, non-Hispanic multiracial, and non-Hispanic others), educational attainment (less than high school, high school diploma/GED, some college, and bachelor’s degree or higher), employment status (employed, out of work, retired, unable to work, and homemakers or students), household income (<$35 000, $35 000-$49 999, $50 000-$74 999, ≥$75 000, and missing), and marital status (married, divorced, widowed, separated, never married, and a member of unmarried couple). According to adults’ self-reported response, general health status was defined as “excellent, very good, or good” versus “fair or poor.”

Statistical analysis

Weighted percentages with 95% confidence intervals of sociodemographic characteristics, self-reported health status, UHCN, and health-risk factors were calculated. Age-adjusted prevalence of UHCN was calculated by sociodemographic characteristics and self-reported

health status, using the 2000 Standard Population.[13] State maps based on tertiles of prevalence of UHCN were generated. Age-adjusted prevalence of each and count of the 5 health-risk factors were calculated by UHCN. Finally, multivariable logistic regressions were constructed to estimate the adjusted prevalence ratio of each and count of the 5 health-risk factors, controlling for age group, sex, race/ethnicity, educational attainment, employment status, marital status, and household income. We conducted the analysis separately for the 2 study populations stratified by health insurance status. We used linear contrast of means to compare characteristics between insurance status, *t* test to compare age-adjusted UHCN between the referent group and other groups for each characteristic, and *t* test from general linear contrasts for predicted marginal to compare model-adjusted health-risk factors by UHCN status. The significance level was set at .05. SAS 9.4 (SAS Institute, Cary, North Carolina) and SAS-Callable SUDAAN 11.0.1 (Research Triangle Institute, Research Triangle Park, North Carolina) were used to perform all statistical analyses and account for the complex sampling design. The study was determined exempt research by the Centers for Disease Control and Prevention Institutional Review Board.

Results

In 2016, 14.1% of adults aged 18 to 64 years without insurance tended to be younger (18 to 44 years); were more likely to be men; Hispanic or non-Hispanic black; have high school diploma or less; be out of work or unable to work; have a household income less than $35 000; be divorced, separated, never married, or a member of unmarried couple; report fair or poor health status; and have UHCN compared with those with insurance (39.7% vs 11.1%) (Table 1). Adults without insurance were also more likely than those with insurance to be current cigarette smokers (26.7% vs 17.1%), have no leisure-time physical activity during the past month (32.2% vs 20.6%), and have 2 (28.2% vs 24.8%) or 3 or more (18.5% vs 13.0%) health-risk factors than those with insurance.

Overall, the age-adjusted prevalence of UHCN was 11.2% among adults aged 18 to 64 years with insurance and 40.1% among those without insurance (Table 2). In both populations, a higher prevalence of UHCN was observed among women; non-Hispanic whites compared with non-Hispanic Asians; adults with lower educational attainment or household income; adults who were out of work, homemakers or students compared with those employed; adults who were divorced, widowed, separated, or a member of unmarried couple compared with their married counterparts; and among adults with self-reported fair or poor health status. While insured adults aged 55 to 64 years were less likely to have UHCN than their youngest counterparts (aged 18 to 34 years), uninsured adults aged 45 to 54 years were more likely to have UHCN than the youngest group. Compared with non-Hispanic whites, except for non-Hispanic Asians and Native Hawaiian/Pacific Islanders, a higher prevalence of UHCN was observed among all the other race/ethnicity groups among insured adults. There were no significant associations, however, between race/ethnicity groups and UHCN among uninsured adults except for non-Hispanic Asians. Furthermore, a higher prevalence of UHCN was also observed among insured adults who were never married, or were unable to work, and a lower prevalence of UHCN was observed among the retired compared with their corresponding counterparts, but these associations were not significant among uninsured adults (Table 2).

There was a similar geographic pattern with regard to the prevalence of UHCN among adults aged 18 to 64 years with and without insurance (Figure). The highest prevalence of UHCN was found mostly in states located in the South with a few high-prevalence states scattered in the Northeast and Western regions.

After adjusting for all sociodemographic characteristics, compared with those who reported no UHCN, insured adults with UHCN were more likely to have each of the 5 health-risk factors among those with insurance (adjusted prevalence ratio ranged from 1.07 for obesity to 1.33 for current cigarette smoking), and uninsured adults were more likely to be a current cigarette smoker, to report excessive alcohol use, and sleep less than 7 hours per 24-hour period (Table 3). Finally, adults with UHCN from both study populations were more likely to report 3 or more health-risk factors than those not reporting UHCN.

Discussion

The study findings based on a nationwide behavioral risk factor survey showed that there were significant associations between UHCN and some or all of the health-risk factors assessed among adults aged 18 to 64 years with and without insurance. Furthermore, although sociodemographic characteristics were associated with UHCN, the associations between adults' self-reported UHCN and 3 health-risk behaviors that were current cigarette smoking, excessive alcohol use, and sleeping less than 7 hours during a 24-hour period, as well as 3 or more health-risk factors, remained significant in both study populations after controlling for sociodemographic characteristics.

The current study did not include adults aged 65 years and older, as a vast majority of these individuals had Medicare coverage and health-risk factors were less prevalent among this population.[3] Our exploratory analysis showed similar significant associations between sociodemographic characteristics and UHCN and between UHCN and 3 or more health-risk factors among adults aged ≥65 years as among adults aged 18 to 64 years. A previous study found that health insurance was associated with preventive care access but not with lifestyle health behaviors.[14] The current study demonstrated that cost barriers were significantly associated with health-risk factors regardless of health insurance coverage, although the prevalence of UHCN among adults aged 18 to 64 years without insurance was much higher than that among adults with insurance. Similarly, the current study indicated that certain sociodemographic characteristics such as lower educational attainment and lower income were associated with UHCN regardless of insurance status. Lifestyle health-risk behaviors, such as smoking and physical inactivity, together with disadvantaged socioeconomic status have been found to contribute to all-cause mortality.[15]

Overall, the current study showed a geographic variation of UHCN with a higher prevalence in the South. A similar geographic pattern was detected for the prevalence of 3 or more health-risk factors in the United States.[3] States with the highest poverty rate have been reported to be in the South.[16] To date, the majority of states that have not expanded Medicaid are also located in the South.[17]

Healthy People 2020 included objectives for the health-risk factors analyzed in this report.[18] For instance, patients with obesity or certain diagnoses such as cardiovascular disease or diabetes should increase office visits that include counseling related to physical activity or diet and nutrition. Numerous studies have found that screening for unhealthy alcohol use with brief behavioral counseling interventions provided moderate benefit to adults aged 18 years or older including pregnant women.[19] The modification of these behaviors through behavioral counseling at primary care settings was recommended by the US Preventive Services Task Force.[20] Although willingness to change health-risk behaviors depends on one's level of health literacy and sociodemographic determinants,[21] physicians and nurse practitioners remain important to evaluate, educate, and motivate patients to adopt lifestyle health behaviors such as promoting physical activity and a healthy diet, while also advising smoking cessation.[20,22]

Compared with other health-risk factors, UHCN had stronger associations with current cigarette smoking and sleeping less than 7 hours during a 24-hour period than other behaviors, which may underscore the importance for such behavioral counseling at clinical settings. For instance, smoking cessation intervention delivered by primary care physicians was confirmed to be successful among smokers.[23] In addition, cognitive behavioral therapy measuring outcomes including total sleep time and sleep efficiency showed efficacy for adults with chronic insomnia.[24] Furthermore, cognitive behavioral group therapy for insomnia was shown to be effective in a primary setting as physicians' inquiries about sleep would help patients detect and address underlying sleep disorders.[25] More importantly, the findings indicated that the prevalence of 3 or more health-risk factors was higher among adults with UHCN than those without UHCN, regardless of insurance status. As lifestyle health behaviors tend to cluster,[3] interventions addressing multiple health behaviors may have more desirable results than targeting a single behavior.[26] Such intervention efforts require continuous care through progress assessment, plan adjustment, and reevaluation at the clinical settings.

To promote adoption of health behaviors, strategies involve enhanced surveillance, environmental approaches, health systems intervention, and community and clinical links.[27] Linked efforts from primary care physicians and communities have been shown to be more successful to improve health behaviors and quality of life than providing counseling at primary care setting alone.[28,29] Research has also noted that challenges existed in terms of building a strong intervention program including availability, accessibility, and affordability of community resources,[28] of which cost is still the major barrier.[6] Although the current study was not able to assess behavioral counseling, the results may indicate that cost could be one barrier preventing adults with health-risk factors from receiving behavioral counseling especially among those underinsured. A case study found that utilization of intensive counseling decreased substantially when patients were charged after they were referred from a practice that offered free behavioral counseling.[6] When seeking to improve health literacy and health behaviors, communities may want to consider increasing access to behavioral counseling for people with UHCN. To accomplish this, multiple counseling options could be used, such as group counseling, individual on-site counseling, telephone counseling, or Internet counseling.[30] Because UHCN and health-risk behaviors are associated with certain sociodemographic characteristics, the community behavioral

counseling services may be considered at no or low cost in areas with a large population of uninsured or underinsured persons.[31]

The findings in this study have several limitations. First, BRFSS is self-reported; therefore, it may be subject to reporting and recall bias. Second, BRFSS does not include institutionalized respondents, so the results may not generalize to these people. Third, adherence to physical activity guidelines could not be assessed in the survey. Fourth, the UHCN question did not contain information about whether a respondent needed to see a doctor in the past year. Answering "No" to UHCN does not imply health care affordability because there may not have been a need to see a doctor. Finally, the survey lacks measures about behavioral counseling and treatment; therefore, further analysis of barriers to such health care access by UHCN status was unavailable.

In conclusion, UHCN due to cost was associated with health-risk factors, including current cigarette smoking, excessive alcohol use, and sleeping less than 7 hours in a 24-hour period, among US adults with or without health insurance. Future efforts could focus on eliminating cost barriers among high-risk populations in targeted regions to promote lifestyle health behaviors for chronic disease prevention.

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Implications for Policy & Practice

- Unmet health care needs due to cost was more likely to be associated with current cigarette smoking and sleeping less than 7 hours during a 24-hour period than other health-risk factors.
- Multiple stakeholders, such as health care providers, health policy makers, payers, and community health care workers, could collaborate to create innovative and practicable approaches and strategies that offer free or low-cost behavioral counseling and health coaching to adults with unmet health care needs due to cost in targeted areas.
- To reduce cost barriers, in addition to pursuing grant funding, various community resources could be identified including but not limited to community health expertise, health care volunteers, and fund-raising programs.

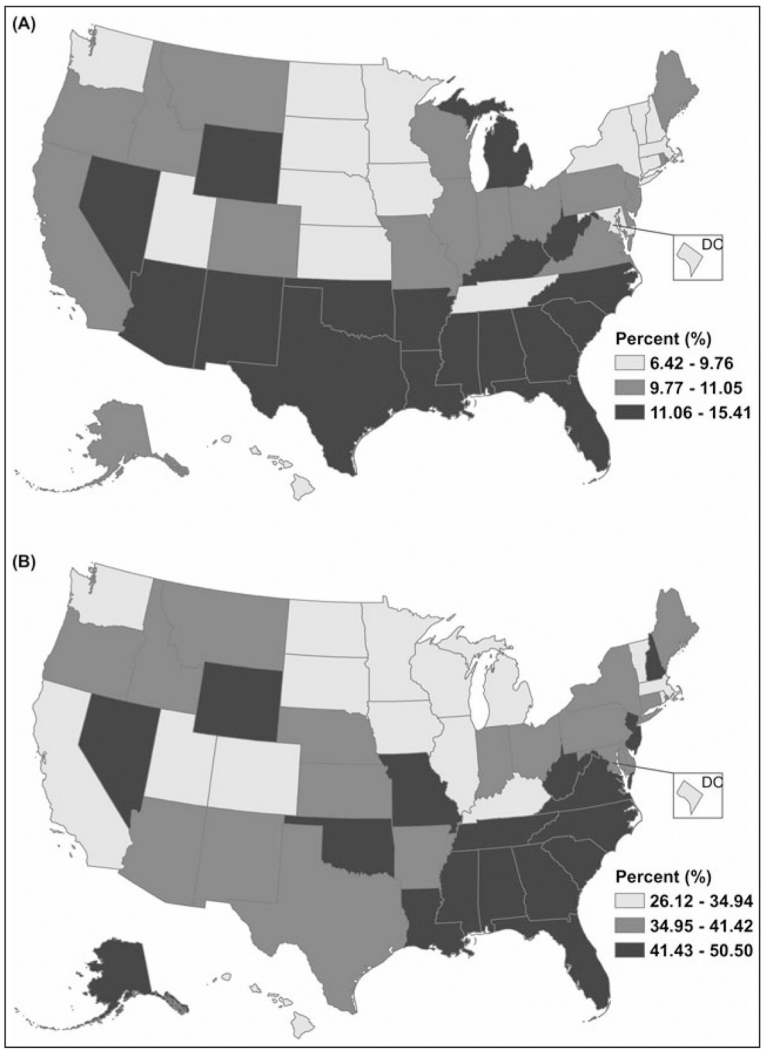

FIGURE.

Prevalence of Unmet Health Care Needs Due to Cost Among US Adults Aged 18 to 64 Years by Insurance Status and State—Behavioral Risk Factor Surveillance System, 2016. (A) Adults Aged 18 to 64 Years With Insurance Coverage. (B) Adults Aged 18 to 64 Years Without Insurance Coverage

TABLE 1

Distribution of Selected Characteristics Among Adults Aged 18 to 64 Years by Insurance Status—Behavioral Risk Factor Surveillance System, 2016

Characteristics	With Insurance %[a] (95% CI)	Without Insurance %[a] (95% CI)
Total, N[b] (%)	269 719 (85.9)	31 316 (14.1)
Age groups, y		
18-34	36.4 (36.1-36.8)	46.3 (45.3-47.4)
35-44	19.9 (19.6-20.2)	23.5 (22.6-24.4)
45-54	21.4 (21.1-21.7)	17.8 (17.0-18.6)
55-64	22.3 (22.0-22.5)	12.4 (11.8-13.1)
Sex		
Men	48.9 (48.5-49.2)	55.1 (54.1-56.2)
Women	51.1 (50.8-51.5)	44.9 (43.8-45.9)
Race/ethnicity		
White[c]	63.9 (63.6-64.3)	38.2 (37.3-39.1)
Black[c]	12.3 (12.0-12.6)	14.0 (13.3-14.7)
Hispanic	14.4 (14.1-14.7)	41.5 (40.5-42.5)
American Indian/Alaska Native[c]	1.0 (1.0-1.1)	1.0 (0.9-1.2)
Native Hawaiian/Pacific Islander[c]	0.2 (0.2-0.2)	0.3 (0.2-0.4)
Asian[c]	6.2 (6.0-6.4)	3.2 (2.8-3.7)
Multiracial[c]	1.6 (1.6-1.7)	1.4 (1.2-1.6)
Others[c]	0.3 (0.3-0.4)	0.5 (0.3-0.6)
Education attainment		
Less than high school	10.0 (9.7-10.2)	34.4 (33.3-35.5)
High school diploma/GED	26.8 (26.5-27.1)	33.3 (32.3-34.2)
Some college	32.8 (32.4-33.2)	23.5 (22.7-24.4)
Bachelor’s degree or higher	30.4 (30.1-30.7)	8.8 (8.4-9.2)
Employment status		
Employed	68.9 (68.5-69.2)	62.6 (61.6-63.6)
Out of work	5.2 (5.0-5.4)	13.3 (12.6-14.0)
Retired	4.8 (4.7-4.9)	1.6 (1.5-1.9)
Unable to work	13.4 (13.1-13.7)	16.3 (15.4-17.1)
Homemaker or student	7.7 (7.5-7.9)	6.2 (5.8-6.8)
Household income		
<$35 000	20.7 (26.7-27.3)	56.2 (55.2-57.3)
$35 000-$49 999	11.0 (10.8-11.3)	10.6 (10.0-11.3)
$50 000-$74 999	13.7 (13.5-14.0)	7.0 (6.5-7.5)
≥$75 000	34.2 (33.8-34.5)	7.1 (6.6-7.6)
Missing	14.1 (13.8-14.3)	19.1 (18.2-19.9)

Characteristics	With Insurance %[a] (95% CI)	Without Insurance %[a] (95% CI)
Marital status		
Married	52.0 (51.6-52.4)	35.3 (34.3-36.3)
Divorced	10.2 (10.0-10.4)	11.3 (10.8-12.0)
Widowed	2.1 (2.0-2.2)	2.1 (1.8-2.5)
Separated	2.4 (2.3-2.5)	5.6 (5.1-6.1)
Never married	28.1 (27.8-28.5)	35.6 (34.6-36.6)
A member of unmarried couple	5.1 (4.9-5.3)	10.1 (9.5-10.8)
Self-reported health status		
Good, very good, or excellent	85.2 (85.0-85.5)	76.6 (75.7-77.5)
Fair or poor	14.8 (14.5-15.0)	23.4 (22.5-24.3)
Unmet health care needs	11.1 (10.9-11.3)	39.7 (38.7-40.7)
Health-risk factors		
Obesity	30.1 (29.7-30.4)	30.1 (29.1-31.1)
Current cigarette smoking	17.1 (16.9-17.4)	26.7 (25.9-27.6)
Excessive alcohol drinking	22.7 (22.4-23.0)	23.2 (22.2-24.1)
Sleeping <7 h per 24-h period	36.7 (36.3-37.1)	36.5 (35.5-37.5)
No leisure-time physical activity during the past month	20.6 (20.3-20.9)	32.2 (31.3-33.3)
Number of health-risk factors		
0	26.0 (25.6-26.3)	20.0 (19.0-21.0)
1	36.3 (35.9-36.7)	33.4 (32.3-34.6)
2	24.8 (24.5-25.1)	28.2 (27.1-29.2)
≥3	13.0 (12.7-13.2)	18.5 (17.6-19.3)

Abbreviations: CI, confidence interval; GED, general equivalency diploma.

[a]Weighted percentages.

[b]Because of missing values resulted from responses of “don’t know/not sure” or “refused,’ sample sizes may change for each of the characteristics.

[c]Non-Hispanic.

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TABLE 2

Age-Adjusted Prevalence[a] of Unmet Health Care Needs Due to Cost Among Adults Aged 18 to 64 Years by Insurance Status and Selected Characteristics —Behavioral Risk Factor Surveillance System, 2016

Characteristics	With Insurance (N = 269 719) % (95% CI)	*P* [b]	Without Insurance (N = 31 316) % (95% CI)	*P* [b]
Overall	11.2 (11.0-11.5)	…	40.1 (39.1-41.1)	…
Demographics				
Age groups, y				
18-34 (ref)	11.6 (11.2-12.1)	…	37.7 (36.2-39.3)	…
35-44	11.3 (10.8-11.8)	.32	40.2 (38.1-42.3)	.07
45-54	11.0 (10.5-11.5)	.07	44.7 (42.4-47.0)	<.001
55-64	10.2 (9.7-10.6)	<.001	39.3 (36.6-42.0)	.33
Sex				
Men (ref)	9.4 (9.1-9.8)	…	35.7 (34.3-37.0)	…
Women	12.9 (12.5-13.3)	<.001	45.5 (43.9-47.0)	<.001
Race/ethnicity				
White[c] (ref)	10.1 (9.8-10.4)	…	41.4 (40.0-42.8)	…
Black[c]	13.4 (12.5-14.2)	<.001	42.7 (40.0-45.5)	.39
Hispanic	14.4 (13.5-15.2)	<.001	39.3 (37.3-41.2)	.08
American Indian/Alaska Native[c]	16.7 (14.7-18.8)	<.001	42.5 (35.0-50.3)	.79
Native Hawaiian/Pacific Islander[c]	2.8 (8.9-18.1)	.24	30.8 (19.7-44.8)	.11
Asian[c]	8.4 (7.2-9.6)	.01	30.9 (25.0-37.6)	.002
Multiracial[c]	15.8 (13.2-18.8)	<.001	44.1 (38.2-50.2)	.38
Others[c]	13.4 (10.6-16.9)	.04	49.1 (37.0-61.4)	.23
Education level				
Less than high school	17.7 (16.5-18.9)	<.001	42.4 (40.4-44.4)	<.001
High school diploma/GED	12.5 (12.0-13.0)	<.001	37.9 (36.3-39.5)	.16
Some college	12.0 (11.5-12.5)	<.001	41.6 (39.7-43.7)	<.001
Bachelor’s degree or higher (ref)	7.3 (7.0-7.6)	…	35.8 (33.4-38.3)	…
Employment status				

Characteristics	With Insurance (N = 269 719) % (95% CI)	*P* [b]	Without Insurance (N = 31 316) % (95% CI)	*P* [b]
Employed (ref)	10.0 (9.7-10.2)	…	37.8 (36.5-39.1)	…
Out of work	18.1 (16.8-19.5)	<.001	47.1 (44.3-49.9)	<.001
Retired	7.1 (5.1-9.8)	.02	46.2 (35.8-56.9)	.13
Unable to work	11.3 (10.4-12.1)	.005	37.6 (34.7-40.7)	.93
Homemakers or students	21.9 (20.4-23.4)	<.001	58.7 (53.8-63.5)	<.001
Household income				
<$35 000	19.5 (18.9-20.2)	<.001	46.2 (44.8-47.6)	<.001
$35 000-$49 999	13.6 (12.8-14.5)	<.001	33.4 (30.6-36.3)	<.001
$50 000-$74 999	10.0 (9.4-10.6)	<.001	32.1 (28.7-35.6)	<.001
≥$75 000 (ref)	4.9 (4.6-5.2)	…	21.6 (19.0-24.5)	…
Missing	11.1 (10.5-11.8)	<.001	35.7 (33.3-38.1)	<.001
Marital status				
Married (ref)	9.3 (9.0-9.6)	…	37.2 (35.5-39.0)	…
Divorced	16.0 (14.9-17.2)	<.001	47.8 (44.3-51.3)	<.001
Widowed	16.7 (13.2-20.8)	<.001	55.5 (44.7-65.9)	<.001
Separated	18.2 (16.4-20.2)	<.001	51.6 (47.0-56.1)	<.001
Never married	12.0 (11.4-12.5)	<.001	37.8 (35.8-39.9)	.67
A member of unmarried couple	16.9 (15.2-18.7)	<.001	43.2 (39.6-46.8)	.004
Self-reported health status				
Good, very good, or excellent (ref)	9.1 (8.9-9.3)	…	33.2 (32.0-34.3)	…
Fair or poor	24.3 (23.3-25.3)	<.001	60.5 (58.2-62.7)	<.001

Abbreviations: CI, confidence interval; GED, general equivalency diploma; ref, referent group.

[a] Estimates (except for age groups) are age-adjusted using the 2000 US Standard Population and 4 age groups: 18 to 34, 35 to 44, 45 to 54, and 55 to 64 for adults aged between 18 and 64 years. More information is available at: https://www.cdc.gov/nchs/data/statnt/statnt20.pdf.

[b] *Based on* t *test to compare age-adjusted UHCN between the referent group and other groups for each characteristic*.

[c] Non-Hispanic.

TABLE 3

Age-Adjusted Prevalence[a] and Model-Adjusted Prevalence Ratio[b] of 5 Health-Risk Factors Associated With Health Care Needs Due to Cost Among Adults Aged 18 to 64 Years by Insurance Status—Behavioral Risk Factor Surveillance System, 2016

Health-risk Factors By Insurance Status	Unmet Health Care Needs Due to Cost (N = 39 934) % (95% CI)	No Unmet Health Care Needs Due To Cost (N = 261 101) % (95% CI)	APR (95% CI)	*P* [c]
With insurance	N = (27 461)	N = (242 258)		
Obesity	35.0 (33.9-36.2)	29.1 (28.7-29.5)	1.07 (1.03-1.11)	<.001
Current cigarette smoking	28.0 (27.0-29.0)	15.9 (15.6-16.2)	1.33 (1.28-1.39)	<.001
Excessive alcohol drinking	23.1 (22.1-24.2)	23.5 (23.2-23.9)	1.09 (1.04-1.15)	<.001
Sleeping <7 h per 24-h period	49.4 (48.2-50.5)	35.5 (35.1-35.9)	1.29 (1.26-1.33)	<.001
No leisure-time physical activity during the past month	27.7 (26.7-28.7)	18.9 (18.6-19.3)	1.11 (1.07-1.15)	<.001
≥3 health-risk factors	21.8 (20.8-22.8)	12.0 (11.7-12.2)	1.40 (1.33-1.48)	<.001
Without insurance	N = (12473)	N = (18 843)		
Obesity	33.1 (31.5-34.7)	29.4 (28.0-30.8)	1.06 (0.99-1.14)	.09
Current cigarette smoking	34.0 (32.5-35.5)	22.4 (21.3-23.6)	1.42 (1.33-1.51)	<.001
Excessive alcohol drinking	23.4 (22.1-24.9)	21.8 (20.6-23.0)	1.21 (1.11-1.31)	<.001
Sleeping <7 h per 24-h period	45.3 (43.7-46.9)	31.1 (29.9-32.4)	1.41 (1.33-1.49)	<.001
No leisure-time physical activity during the past month	34.9 (33.3-36.4)	31.7 (30.4-33.1)	0.99 (0.93-1.05)	.70
≥3 health-risk factors	23.7 (22.3-25.1)	15.5 (14.4-16.7)	1.39 (1.27-1.53)	<.001

Abbreviations: APR, adjusted prevalence ratio; CI, confidence interval.

[a]Estimates (except for age groups) are age-adjusted using the 2000 Standard Population and 5 age groups: 18 to 34, 35 to 44, 45 to 54, and 55 to 64 for adults aged between 18 and 64 years. More information is available at: https://www.cdc.gov/nchs/data/statnt/statnt20.pdf.

[b]Models were adjusted for sociodemographic characteristics that were age groups, sex, race/ethnicity, educational attainment, employment status, marital status, and household income.

[c]*Based on* t *test from general linear contrasts of predicted marginals in the loglink statement in SAS-Callable SUDAAN.*