

Effects of Smoking on the Prevalence of Self-Reported Antihypertensive Medication Use Among Community-Dwelling Stroke Survivors

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INTRODUCTION

Research has previously documented cigarette smoking as a significant modifiable risk factor for recurrent stroke¹. Smoking also increases the risk of stroke in patients with hypertension.² Though the relationship between smoking and hypertension is still being determined, studies have found that cigarette smoking can weaken the effects of antihypertensive medication³, while others found lower adherence to antihypertensive medication in smokers compared to non-smokers.⁴

Because community-dwelling stroke survivors face diverse emotional and physical unmet needs following discharge, evaluating the potential relationship between smoking and antihypertensive medication use in this population is a pressing issue.⁵ To date, very few studies have examined how smoking relates to antihypertensive medication use among community-dwelling stroke survivors in the United States.

The main objective of this project is to provide further evidence regarding the effects of cigarette smoking on the prevalence of self-reported antihypertensive medication use (AHM) among community-dwelling stroke survivors.

OBJECTIVE

- To describe and evaluate the relationship between cigarette smoking and self-reported antihypertensive medication use among community-dwelling stroke survivors.

STUDY DESIGN

Data Source

- This retrospective cohort study analyzed a total of 8,369 from the 2019 Behavioral Risk Factor Surveillance System database.

Population

- Patients were 65 years or older.
- Patients previously had a stroke.
- Patients were told by a health professional that they had high blood pressure.

Data Analysis

- Identified patients who answered yes to the following questions:
 - (Ever told) you had a stroke.⁶
 - Are you currently taking medicine for your high blood pressure?⁶
 - Have you ever been told by a doctor, nurse or other health professional that you have high blood pressure?⁶
 - Adults who are current smokers.⁶
- Multivariate logistic regression to test the association between cigarette smoking and antihypertensive medication use.

FINDINGS

Table 1. Characteristics of hypertensive community-dwelling stroke survivors

	#	%
Smoking Status		
Non-smoker	7,380	88%
Smoker	989	12%
Antihypertensive Medication Use		
Yes	7,837	94%
No	532	6.4%
Age		
65-69	1,851	22%
70-74	2,159	26%
75-79	1,823	22%
80+	2,536	30%
Sex		
Male	3,705	44%
Female	4,664	56%
Race/Ethnicity		
White, non-Hispanic	6,694	80%
Black, non-Hispanic	851	10%
Other, non-Hispanic	520	6.2%
Hispanic	304	3.6%
Healthcare Coverage		
Medicare	1,620	72%
Medicaid	118	5.3%
Comorbidities		
Diabetes	3,108	37%
Kidney Disease	1,229	15%
Asthma	1,045	12%
Socioeconomic Factors		
Graduated HS or College	4,870	58%
Married	3,413	41%
< \$50,000	4,817	57%

Table 2. Contingency table of AHM use by smoking status

Smoking Status	Antihypertensive Medication Use		
	Yes	No	Total
Non-smoker	6,940 94%	440 6%	7,380 100%
Smoker	897 90.7%	92 9.3%	989 100%
Total	7,837 93.6%	532 6.4%	8,369 100%
$\chi^2=15.790$	df=1	$\phi=0.044$	$p=0.000$

- P-value is less than the significance level of 5%.
- There is evidence of a significant relationship between cigarette smoking status and self-reported AHM use.

Figure 1. Self-reported antihypertensive medication use by cigarette smoking status

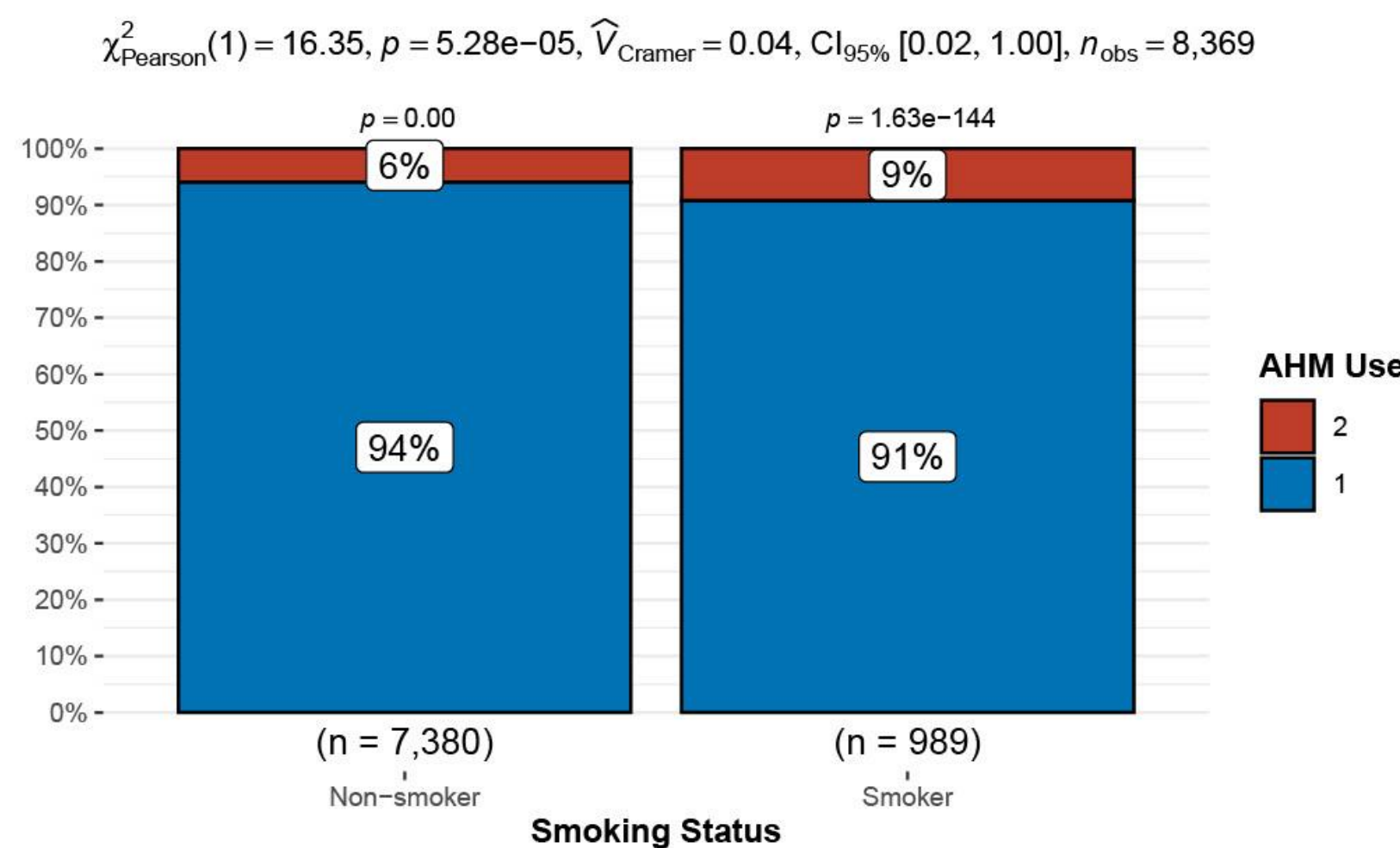


Table 3. Association between smoking status and self-reported AHM use (reference level = AHM user)

	Multivariate AOR ¹	Average Marginal Effect ¹
Smoker	1.57 (1.22, 1.99)***	3.04% (1.14%, 4.93%)

¹Adjusted for race/ethnicity, age group, education level, comorbidities (diabetes, asthma, kidney disease), and income level.

DISCUSSION

- In our analysis, antihypertensive community-dwelling stroke survivors who smoked had a 3.04 percentage point higher probability of not using antihypertensive medication compared to non-smokers.
- Other predictors of not using antihypertensive medication were: having kidney disease and having an income less than \$50,000.
- Our findings highlight the potential impact of cigarette smoking on antihypertensive medication use in community-dwelling stroke survivors.
- More research is needed on the underlying risk factors of low antihypertensive medication use and adherence in community-dwelling stroke survivors.

NEXT STEPS

- Investigate other socioeconomic factors that may impact antihypertensive medication use and adherence in older stroke survivors.
- Investigate further effects of cigarette smoking in community-dwelling stroke survivors.
- Determine socioeconomic factors associated with cigarette smoking in community-dwelling stroke survivors.

SUMMARY

In a retrospective cohort study of 8,369 community-dwelling survey respondents with a history of stroke and hypertension, we investigated the relationship between cigarette smoking and self-reported antihypertensive medication use. Our findings indicate that cigarette smoking is associated with a lower prevalence of antihypertensive medication use in hypertensive stroke survivors living in the community. Our study had several limitations, and further analyses should be conducted to better understand this relationship.

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