

Aspirin use among adults with cardiovascular disease in the United States: Implications for an intervention approach

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APHA 2019 Annual Meeting & Expo
November 05, 2019

Conflict of Interest Disclosure

I have no personal financial relationships or otherwise with commercial interests relevant to this presentation during the past 12 months.

Learning Objectives

1. Evaluate the prevalence of cardiovascular disease (angina pectoris, myocardial infarction and cerebrovascular disease (stroke)) in a sample of American adults
2. Assess the use of aspirin for the secondary prevention of angina pectoris, myocardial infarction and cerebrovascular disease (stroke)
3. Identify the factors associated with aspirin use among adults with cardiovascular disease.

Background

Cardiovascular disease (CVD):

- Term used for a number of disorders affecting the heart and blood vessels
- Major underlying cause of death, with high economic burden worldwide and in the U.S

31% (>17.3 million) of all global mortality

33% (801,000) of mortality cases in the U.S

\$863 billion annual cost of CVD globally

\$200 billion annual cost of CVD in the U.S

- CVD risk reduction strategies:
 - Recommended physical activity
 - Consuming healthy diets
 - Maintaining a healthy weight
 - Avoiding smoking and reducing alcohol intake
 - Antiplatelet therapy (aspirin) for CVD 2ry prevention
- American Heart Association (AHA) :
 - Aspirin is part of a well-established treatment plan and is recommended for patients with a history of heart attack or stroke
- Very few studies have examined aspirin use for the prevention of specific disorders grouped under CVD.

Methods

Study Aims

- 1) Examine the prevalence of CVD (angina pectoris (AP), myocardial infarction (MI), and cerebrovascular disease (stroke)) in a sample of American adults
- 2) Examine aspirin use for the secondary prevention of AP, MI, and stroke
- 3) Identify the factors associated with aspirin use among adults with AP, MI and stroke

Behavioral Risk Factor Surveillance System (BRFSS):

- Sponsored by CDC and other federal agencies
- Nationally representative cross-sectional survey
- Collects data on residents in all U.S 50 states, DC, and three U.S territories, regarding their health related risk behaviors, chronic health conditions, and use of preventive services
- Phone interviews (landline and cellphone) used for conducting surveys
- Largest continuously conducted health survey system in the world, with > 400,000 adult interviews completed each year
- Useful tool for addressing and developing health promotion activities
- The 2015 BRFSS dataset was analyzed for this current study.

Outcome measures

Participants' responses to the following questions:

- “Do you take aspirin daily or every other day?” (yes/no)
- “Have you ever been told by a doctor, nurse, or other health professional that you had a heart attack, also called a myocardial infarction?”(yes/no)
- “Have you ever been told by a doctor, nurse, or other health professional that you had angina or coronary heart disease?” (yes/no)
- “Have you ever been told by a doctor, nurse, or other health professional that you had a stroke?” (yes/no)

Demographic and clinical variables

- Sex, age, race, education, income, marital status, healthcare coverage, smoking status, general health, high blood pressure, diabetes, high blood cholesterol, and body mass index

Statistical analyses

- Descriptive statistics: For respondents' characteristics
- Data were weighted
- Chi-square test: For percentages and p-values, and significance level set at $p < 0.05$
- Binary logistic regression: For odds ratios and related 95% confidence intervals

Respondents' characteristics

Total population, N = 441,456

The majority:

45-64 years (38.6%)

Female (57.7%)

White (76.1%)

> high school education (63.9%)

>\$50,000 annual income (39.3%)

Couple relationship (55.7%)

Total population, N = 441,456

The majority:

Have healthcare coverage (92.3%)

Good/Very good (63.9%)

No high blood pressure (59.3%)

Diabetic (13.0%)

No high plasma cholesterol (49.6%)

None smoker (66.4%)

Overweight (36.3%)

Prevalence of cardiovascular disease: BRFSS 2015

Cardiovascular disease	Prevalence of cardiovascular disease (Weighted percentages)
Angina	4.0%
Myocardial infarction	4.3%
Stroke	3.0%

Prevalence of daily aspirin use among respondents with cardiovascular disease: BRFSS 2015

Cardiovascular disease	Prevalence of daily aspirin use (Weighted percentages)
Angina	64.8%
Myocardial infarction	71.1%
Stroke	57.3%

Logistic regression analysis of factors associated with aspirin use among respondents based on cardiovascular disease status: BRFSS 2015 data

Variables	Odds Ratio	95% Confidence Interval	p-Value
Sex			
Male	Ref.		
Female	0.62	0.49–0.79	<0.0001
Education			
> High school	Ref.		
High school	0.68	0.45–1.03	0.07
< High school	0.62	0.41–0.94	0.03
High blood pressure			
No	Ref.		
Yes	1.46	1.11–1.93	<0.01
Diabetes			
No	Ref.		
Yes	1.54	1.19–1.99	<0.01
General health			
Excellent	Ref.		
Good/Very good	2.77	1.56–4.99	<0.01
Poor/Fair	6.07	3.29–11.18	<0.001

Conclusions

- Significant reduction in morbidity and mortality attributed to regular use of aspirin for secondary prevention of CVD
- Not all groups of individuals are leveraging the benefits from the recommended use of aspirin, and may consequently be at higher risks for cardiovascular events and premature death

- Strategies to increase aspirin use among individuals with CVD:
 1. Making policies that promote utilization at all levels of primary care and public health
 2. Educating patients and caregivers about the benefits of aspirin
 3. Implementing interventions that target the underserved

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Zachary Hoffman, MS

Nicollette Lewis

Casandra Savoy

Angela Hickson

Rebeca Stone, DrPH

Tara Johnson

Acknowledgement

The Public Health Summer Scholars Program
Institute of Public and Preventive Health
Augusta University
Augusta, Georgia, USA