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Do Heavy Smoking and Early Onset of Smoking and Heavy Alcohol Intake Increase the Chance of Heart Condition?

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BACKGROUND

❖ Cardiovascular disease (CVD) is the leading cause of death globally since the turn of the century. One major risk factor is tobacco smoking with a particular risk associated with early initiation/greater duration. Research also indicates that alcohol use can offer both risk or protective cardiovascular benefits depending on consumption characteristics (intensity, frequency, dose, type). The purpose of this study is to examine the early onset of smoking, heavy smoking, and alcohol behavior as they relate to CVD risk.

OBJECTIVES

❖ To determine the cardiovascular risk of heavy cigarette smoking, early onset smoking and heavy alcohol consumption.

METHODS

❖ Using nationally representative data from the 2019 National Survey on Drug Use and Health, logistic regression analyses were conducted to examine the association between CVD and heavy smoking, heavy alcohol drinking and early onset of smoking among US adults controlling for sociodemographic factors. Heavy smoking was defined as: ≥ 25 cigarettes/day; heavy drinking: ≥ 5 drinks for males or ≥ 4 drinks for females on each of 5 or more days in the past 30 days; early onset of smoking: ≤ 12 years. The dependent variable is that you had heart condition or not.

KEY FINDINGS

❖ Overall, 19.7% of study population (n= 56,136) reported CVD conditions, 5.9% heavy alcohol consumption and 4.9% early onset of smoking. Across all age groups, the odds of CVD among heavy alcohol drinkers was 23.6% less than not, odds ratio (OR): 0.76, 95% confidence interval (CI): (0.63-0.92), 44% more among those smoked 25 or more cigarettes per day than less, 1.44 (1.01-2.05), 49% more among those with early onset of smoking than none, 1.49 (1.15-1.93). Based on age group, we found that heavy alcohol consumption could be either risk factor or protective factor of CVD or no effect on CVD: for aged 12-18, OR 1.69 (CI 0.69-4.16); 19-25, 0.75 (0.48 1.15), 26-29, 1.21 (0.57-2.53); 30-34, 0.80 (0.36-1.77); 35-49, 0.61 (0.40-0.93); 50-64, 1.12 (0.77-1.62); >64 , 0.93 (0.57-1.52). Based on gender, the odds of heart condition among males were higher than females, 1.22 (1.13-1.32). In terms of race, the odds of CVD risk were lower for all groups: Hispanic, 0.48 (0.42-0.54); non-Hispanic Black, 0.50 (0.44-0.58); Others, 0.71 (0.61-0.81) compared with non-Hispanic White. Based on income, we found: the odds of CVD risk were higher among those reporting high income than low income, \$20k-\$49k vs. $< \$20k$, 1.24 (1.14-1.36), $\geq \$50k$ vs. $< \$20k$, 1.15 (1.03-1.27). The odds of CVD risk were higher among those reporting some college education or above 1.16 (1.01-1.29), associates or higher than high school, 1.12 (1.03-1.23), compared to high school or less. Age was also a significant risk factor of CVD, the older the more likely to have heart condition, 1.10 (1.09-1.11).

RESULTS

Table 1. Characteristics of Study Participants, NSDUH 2019.

Variables	Ever had heart condition (Yes) n (%)	Ever had heart condition (No) n (%)	Frequency (N)	Percentage (%)
Age (years)				
12 to 18	317 (2.04)	2,218 (14.18)	2,535	16.22
19 to 25	332 (2.12)	1,999 (12.79)	2,331	14.91
26 to 29	102 (0.65)	659 (4.22)	761	4.87
30 to 34	135 (0.86)	994 (6.36)	1,129	7.22
35 to 49	528 (3.38)	3,035 (19.42)	3,563	22.79
50 to 64	587 (3.76)	1,889 (12.08)	2,476	15.84
> 64	1,071(6.85)	1,766 (11.30)	2,837	18.15
Gender				
Male	1,497 (9.58)	5,491 (35.13)	6,988	44.70
Female	1,575 (10.08)	7,069 (45.22)	8,644	55.30
Race				
Hispanic	289 (1.85)	2,026 (12.96)	2,315	14.81
Non Hisp Black	267 (1.71)	1,774 (11.35)	2,041	13.06
Non Hisp White	2,261(14.46)	7,552 (48.31)	9,813	62.78
Other race	255 (1.63)	1,208 (7.73)	1,463	9.36
Number of cigarettes/ day				
25 or less	296 (17.31)	1,228 (71.81)	1,524	89.12
26 or more	48 (2.81)	138 (8.07)	186	10.88
Early onset smoking (year)				
≤ 12 years	89 (1.80)	192 (3.88)	281	5.68
> 12 years	1,107 (22.37)	3,560 (71.95)	4,667	94.32
Heavy alcohol intake				
Yes	139 (0.89)	734 (4.70)	873	5.58
No	2,933 (18.76)	11,826 (75.65)	14,759	94.42
Income				
$< \$20k$	1,469 (9.40)	6,585 (42.13)	8,054	51.52
\$20K- \$49K	964 (6.17)	3,475 (22.23)	3,139	28.40
$> \$50k$	639 (4.09)	2,500 (15.99)	4,439	20.08
Education				
High.sch or less	1,331 (8.51)	5,843 (37.38)	7,174	45.89
Some college	695 (4.45)	2,623 (16.78)	3,318	21.23
Assoc./college grad	1,046 (6.69)	4,094 (26.19)	5,140	32.88
Employment				
Yes	1,312 (15.12)	6,753 (77.83)	8,065	92.95
No	91 (1.05)	521 (6.00)	612	7.05

Table 2. Multiple Logistic Regression Analysis

Variables	Adjusted Odds Ratio (aOR)	95 Confidence Interval	P-value
Early onset smoking ≤ 12 years vs > 12 years	1.49	1.15- 1.93	$< .0001$
Heavy alcohol intake	0.76	0.63- 0.92	$< .0001$
Smoked 26 or more cigarette	1.44	1.01 – 2.05	$< .0001$
Income \$20k-\$49k vs. $< \$20k$ \$50k or more vs $< \$20k$	1.24 1.15	1.14-1.36 1.03-1.27	$< .0001$ $< .0001$
Heavy alcohol intake Stratified by Age Groups			
12-18	1.69	0.69-4.16	$> .05$
19-25	0.75	0.48-1.15	$> .05$
26-29	1.21	0.57-2.53	$> .05$
30-34	0.80	0.36-1.77	$> .05$
35-49	0.61	0.40-0.93	$< .0001$
50-64	1.21	0.77-1.62	$> .05$
> 64	0.93	0.57-1.52	$> .05$
Gender Male vs Female	1.22	1.13-1.32	$< .0001$

CONCLUSION

❖ Study findings demonstrate that heavy alcohol consumption can be either risk factor or protective factor of CVD or no effect on CVD across different age groups. Heavy smoking, early onset of smoking, being male, White race, having better education, high income and advanced age were found to be significant predictors of CVD risk. Future observational studies should be performed to determine the combined effects of heavy alcohol consumption and heavy smoking as it relates to CVD risk by other behavioral risk factors such as types of alcohol consumed (i.e. spirits vs wine) and other lifestyle habits. Ongoing public health efforts to advance understanding of how heavy substance use influences CVD risk can accelerate prevention efforts that can lead to in important population-level gains concerning cardiovascular well-being.

