

Prevalence and Correlates of Cannabis Use and Co-Use in Cigarette Smokers and Non-Smokers: An Emergency Department Study

BACKGROUND

Compared to the general household population, elevated rates of cannabis and cigarette smoking are found among adults seeking medical care at urban safety-net hospital Emergency Departments (EDs). The goal of this study is to assess the prevalence, and identify the demographic and psychosocial correlates, of cannabis use with and without cigarette co-use in comparison to non-cannabis/tobacco users in an urban ED population.



METHODS

Secondary analysis was conducted on cross-sectional data collected in 2017 for a study on intimate partner violence, drinking and drug use among married/partnered adults ages 18-50 who were English or Spanish speakers seeking non-acute care at an urban ED (N=1,037; 53% female). Face-to-face survey interviews were conducted after obtaining informed consent from participants.

Measures:

- Cannabis use: Any past 12-month use (y/n)
- Cigarette use: Any past 30-day use (y/n)
- Demographic factors: age, gender, level of education, race/ethnicity.
- Mental health factors: PTSD screen (PC-PTSD; Prins et al., 2003); anxiety and depression screen (Hospital Anxiety and Depression Scale; Zigmond & Snaith, 1983; past-year risky drinking (males/females drank at least 5+/4+).

Analysis:

We conducted chi-square analysis to examine the relationship between demographic and mental health factors and cannabis/tobacco co-use status (Table 1), and multinomial logistic regression to estimate the factors associated with each type of cannabis/tobacco co-use category relative to non-users (Table 2).

RESULTS

Study participants were categorized as smokers without cannabis use (13.5%); cannabis users without tobacco use (13.8%); cannabis users with tobacco use (13.3%); and those who used neither cannabis nor cigarettes (59.5%). Significant differences in cannabis/cigarette use and co-use were seen for all demographic factors and most mental health factors.

Compared to women, men had greater odds of smoking cigarettes without cannabis (aOR=3.26; 95% CI 2.12, 5.00), using cannabis without cigarettes (aOR=2.38; 95% CI 1.54, 3.69), or being a cannabis/tobacco co-user (aOR=3.72; 95% CI 2.30, 6.02). Hispanic participants were less likely to smoke cigarettes without cannabis (aOR=0.24; 95% CI 0.10, 0.56), use cannabis without cigarettes (aOR=0.18; 95% CI 0.08, 0.42), or co-use cannabis/tobacco (aOR=0.05; 95% CI 0.02, 0.11) than white participants. Participant age was inversely

associated with using cannabis without cigarettes (aOR=0.93; 95% CI 0.91, 0.96) and being a cannabis/tobacco co-user (aOR=0.95; 95% CI 0.93, 0.98). Regarding psychosocial factors, those who screened positively for anxiety had greater odds for using cannabis without cigarettes (aOR=1.93; 95% CI 1.20, 3.10) and being a cannabis/tobacco co-user (aOR=3.40; 95% CI 2.04, 5.66) compared to those who screened negatively. Those who screened positively for PTSD had elevated odds for using cannabis without cigarettes (aOR=1.65; 95% CI 1.00, 2.75) compared to those who screened negatively. Those who had engaged in risky drinking had greater odds of smoking cigarettes without cannabis (aOR=2.27; 95% CI 1.47, 3.48), using cannabis without cigarettes (aOR=2.54; 95% CI 1.61, 4.02), or being a cannabis/tobacco co-user (aOR=4.34; 95% CI 2.71, 6.97) compared to those who had not engaged in this behavior.

Table 1 Sample Characteristics by Cigarette Smoking and Cannabis Use Status, number (%)

	N	Non-smoker/ non-cannabis user (59.5%)	Cigarette smoking only (13.5%)	Cannabis use only (13.8%)	Cigarette smoking and cannabis use (13.3%)	For chi square test
Age: mean (SD)	1024	35.81 (8.14)	36.83 (7.94)	31.74 (9.03)	34.18 (9.04)	F = 11.59, p < .001
Gender:						
Male	479 (46.9)	241 (39.6)	92 (66.7)	67 (47.9)	79 (58.1)	X ² = 41.42, 3df p < .001
Female	543 (53.1)	367 (60.4)	46 (33.3)	73 (52.1)	57 (41.9)	
Education:						
Less than high school	331 (32.8)	220 (36.8)	49 (35.8)	27 (19.4)	35 (26.1)	X ² = 42.42, 9df p < .001
High school graduate	362 (35.9)	197 (32.9)	58 (42.3)	51 (36.7)	56 (41.8)	
Some college	223 (22.1)	114 (19.1)	24 (17.5)	47 (33.8)	38 (28.4)	
College graduate+	92 (9.1)	67 (11.2)	6 (4.4)	14 (10.1)	5 (3.7)	
Race/ethnicity:						
Hispanic	512 (50.0)	398 (65.2)	60 (43.5)	35 (24.8)	19 (14.0)	X ² = 187.22, 9df p < .001
African American	297 (29.0)	108 (17.7)	46 (33.3)	76 (53.9)	67 (49.3)	
Multiracial/Other	149 (14.5)	79 (13.0)	22 (15.9)	18 (12.8)	30 (22.1)	
White	67 (6.5)	25 (4.1)	10 (7.2)	12 (8.5)	20 (14.7)	
Depression screen:						
Positive	174 (17.0)	91 (14.9)	29 (21.0)	22 (15.6)	32 (23.5)	X ² = 7.71, 3df p = .052
Negative	850 (83.0)	518 (85.1)	109 (79.0)	119 (84.4)	104 (76.5)	
Anxiety screen:						
Positive	367 (35.8)	170 (27.9)	48 (34.8)	63 (44.7)	86 (63.2)	X ² = 65.88, 3df p < .001
Negative	657 (64.2)	439 (72.1)	90 (65.2)	78 (55.3)	50 (36.8)	
PTSD screen:						
Positive	257 (25.1)	119 (19.5)	30 (21.7)	47 (33.3)	61 (45.2)	X ² = 44.87, 3df p < .001
Negative	766 (74.9)	490 (80.5)	108 (78.3)	94 (66.7)	74 (54.8)	
Risky drinking:						
Yes	277 (27.0)	115 (18.9)	50 (36.2)	48 (34.0)	64 (47.1)	X ² = 57.79, 3df p < .001
No	748 (73.0)	495 (81.1)	88 (63.8)	93 (66.0)	72 (52.9)	

Table 2 Multinomial logistic regression results

	Cigarette smoking only aOR (95% CI)	Cannabis use only aOR (95% CI)	Cigarette smoking and cannabis use aOR (95% CI)
Age	1.00 (0.97, 1.02)	0.93 (0.91, 0.96) ***	0.95 (0.93, 0.98) ***
Gender:			
Male	3.26 (2.12, 5.00) ***	2.38 (1.54, 3.69) ***	3.72 (2.30, 6.02) ***
Female (ref.)	---	---	---
Education:			
Less than high school	4.35 (1.64, 11.53) **	1.38 (0.61, 3.12)	7.90 (2.61, 23.97) ***
High school graduate	3.93 (1.55, 9.99) **	1.34 (0.64, 2.79)	5.25 (1.84, 15.01) **
Some college	2.48 (0.93, 6.61)	1.64 (0.79, 3.44)	4.94 (1.70, 14.32) **
College graduate+ (ref.)	---	---	---
Race/ethnicity:			
Hispanic	0.24 (0.10, 0.56) **	0.17 (0.08, 0.42) ***	0.05 (0.02, 0.11) ***
African American	1.00 (0.42, 2.37)	1.87 (0.84, 4.19)	1.08 (0.50, 2.33)
Multiracial/Other	0.73 (0.29, 1.84)	0.58 (0.23, 1.43)	0.63 (0.27, 1.47)
White (ref.)	---	---	---
Depression screen:			
Positive	1.48 (0.86, 2.54)	0.89 (0.49, 1.62)	1.13 (0.63, 2.02)
Negative (ref.)	---	---	---
Anxiety screen:			
Positive	1.39 (0.86, 2.24)	1.93 (1.20, 3.10) **	3.40 (2.04, 5.66) ***
Negative (ref.)	---	---	---
PTSD screen:			
Positive	0.97 (0.58, 1.63)	1.48 (0.91, 2.41)	1.65 (1.00, 2.75)
Negative (ref.)	---	---	---
Risky drinking:			
Yes	2.27 (1.47, 3.48) ***	2.54 (1.61, 4.02) ***	4.34 (2.71, 6.97) ***
No (ref.)	---	---	---

Reference group is non-cigarette smokers/non-cannabis users. *p<0.05; **p<0.01; ***p<0.001

Limitations:

The cross-sectional study design precludes causal inference. The sample was obtained from a single safety-net ED, which may limit the generalizability of findings. It is unknown if those who reported co-use of cannabis and cigarettes engaged in simultaneous use. Recall bias may have affected participants' ability to recall past-year drinking, cannabis use, and other behaviors.

CONCLUSIONS

Over one quarter of an urban ED sample used cannabis either with or without cigarettes. The results suggest that there are distinct demographic and mental health risk and protective factors associated with cannabis use and co-use in cigarette smokers and non-smokers. Cannabis users who smoke cigarettes may be especially vulnerable to mental health problems.

CONFLICTS OF INTEREST

None to report.

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