What is the relationship between co-administration of cannabis and tobacco and persistence of frequent cannabis use?

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Introduction

Cannabis is the most used illicit drug in the world (1). In 2016, around 10% of the Australian population aged 14 years or older had used cannabis in the last 12 months (2). Mixing cannabis with tobacco is a common practice worldwide (3,4). However, there is no estimate of the prevalence of co-administrating cannabis with tobacco in Australia.

Mixing cannabis with tobacco is a public health concern because it may be associated with higher levels of cannabis use, which in turn may be associated with worse health outcomes, especially with consideration of the harms associated with tobacco use.

In contrast to cannabis, tobacco is a leading contributor to mortality; tobacco causes the death of six million people around the world each year (5).

Research aim

What is the relationship between co-administration of cannabis and tobacco and persistence of frequent cannabis use?

Research objectives

1- Do cannabis users who regularly mix cannabis with tobacco persistently consume cannabis at higher levels compared with those who do not regularly mix these substances?

2- Do patterns of mixing cannabis with tobacco during the first years of early adulthood (19-23 years) predict subsequent levels of cannabis use at 4½ years later?

Methods

Data are from a prospective population-based study of young adults residing in South-East Queensland, Australia, which commenced in 2009. The mean age of participants was 20.9 years at baseline, and 51.7% were female. The frequency and quantity of cannabis consumption over 4½ years was examined. An ordinal logistic regression analysis was conducted using persistence of cannabis use (baseline, 12 months, 4½ years) as the outcome variable, reporting unadjusted odds ratio (OR) and 95% confidence intervals.

Results

Always mixing (OR: 9.84, 95% CI: 4.35-22.27) and sometimes mixing (OR: 3.34, 95% CI: 1.09-10.22) cannabis with tobacco at the study baseline were associated with persistent cannabis use over the 4½ year study period, independently of baseline frequency of cannabis use and tobacco use, respectively. At every time interval, participants who always mixed cannabis with tobacco had used cannabis on more days in the last month, compared with those who only sometimes mixed or never mixed the drugs (p<0.001).

Conclusion

Findings of this study have important implications for the development of health programs for cannabis users. Young adults are an important target population for these programs, including secondary prevention. Mixing cannabis with tobacco may contribute to longer involvement in frequent cannabis use. Young adult cannabis users should be advised not to mix tobacco with cannabis.

Reference

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2- Australian Institute of Health and Welfare. National Drug Strategy Household Survey 2016. Canberra: AIHW: Drug Statistics series no. 31, Cat. no. PHE 214.; 2017.

3- Amos A, Wiltshire S, Bostock Y, Haw S, McNeill A. 'You can't go without a fag ... you need it for your hash' - a qualitative exploration of smoking, cannabis and young people. Addiction. 2004;99(1):77-81.

4- Ream GL, Benoit E, Johnson BD, Dunlap E. Smoking tobacco along with marijuana increases symptoms of cannabis dependence. Drug and alcohol dependence. 2008;95(3):199-208.

5- World Health Organization. WHO global report on trends in prevalence of tobacco smoking 2015: World Health Organization; 2015.

Table 1: Sample and group characteristics

Age at baseline	
Mean	20.9 years (SD=1.2)
Range	19-23 years
Gender	
Female (n=119)	51.7%
Male (n=111)	48.7%
Education at baseline	
Completed senior secondary school (n=160)	69.6%
Age first cannabis used	**15.3 years (SD=2)**
Age first tobacco used	**14.5 years (SD=2.6)**
Baseline characteristics of recent users (n=230)	
Cannabis use in the last month at baseline	54.8%
Average days cannabis used in the last month	6.6 days
Mixed cannabis with tobacco in the last month at baseline	45.2%

Figure 1: Average days of cannabis use per month at three-time intervals by the categories of cannabis and tobacco co-administration

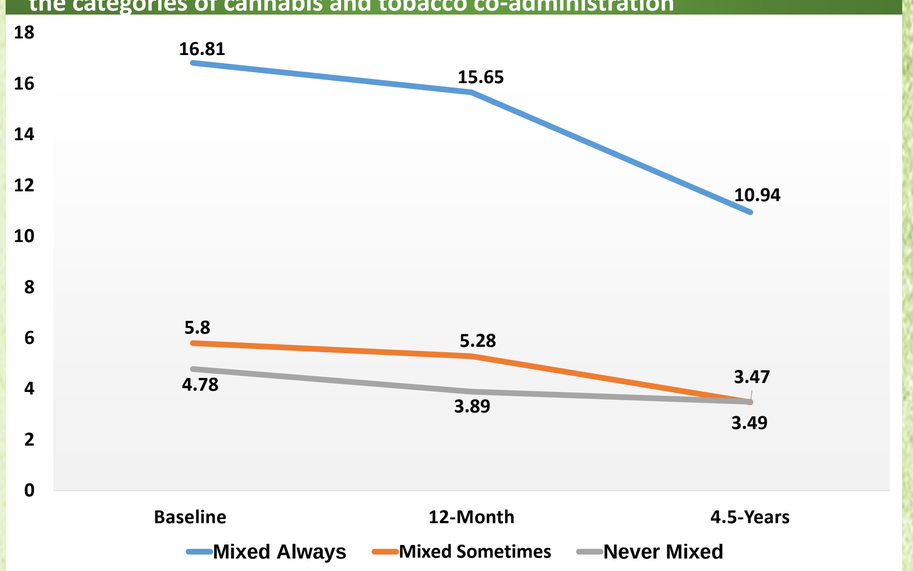

Table 2: An ordinal logistic model of high-level of cannabis use at baseline, 12 month and 4 ½ years, with unadjusted estimates of odd ratios (OR), reporting 95% confidence intervals [a].

Parameters	Unadjusted		
	n	OR	95% (CI)
Baseline substances use			
Mixing cannabis and tobacco [b]			
(Ref= No mixing)	126	1	
Mixing sometimes	30	3.34*	1.09-10.22
Mixing always	74	9.84**	4.35-22.27
Cannabis used in the past 12-months			
(Ref=Never used in the past 12-months)	47	1	
Less than once a month	83	0.94	0.22-4.12
1-3 Days per week	32	0.48	0.05-4.81
Daily / Weekly	68	19.92**	5.63-70.44
Days tobacco smoked last month	217	1.09**	1.06-1.13
Days alcohol used last month			
(Ref= 1-4½ STD drinks)	78	1	
5-10 STD drinks	87	1	0.45-2.20
More than 10 STD drinks	59	1.37	0.59-3.12
Days ecstasy used last month			
(Ref= No Ecstasy use)	121	1	
Occasional Ecstasy use	53	0.91	0 .40-2.09
Persistent Ecstasy use	56	1.43	0 .67-3.05
Days methamphetamine used last month			
(Ref= No methamphetamine use)	157	1	
Occasional methamphetamine use	18	0 .67	0.19-2.46
Persistent methamphetamine use	13	1.43	0 .43-4.82
Age of first-time cannabis use	230	0 .77*	0 .65-0 .91
Age of first-time tobacco use	216	0 .84*	0 .74-0 .95
Sex			
(Ref= Female)	119	1	
Male	111	2.41*	1.24-4.71

* P<0.05

** P<0.001

[a] Using the variable of days of cannabis use in the last month in each time interval, the outcome variable (high-level of cannabis use in the last month) was made. A cut off value of the top 10% (days cannabis used= 21) was used according to the last follow up (4 ½ year). This threshold was used with the other time intervals.

[b] Participants who co-administer cannabis with tobacco (i.e. mixed together).

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