Ceasing cannabis use during the peak period of experimentation:

A prospective study of the substance use and mental health outcomes

of young adult cannabis users and former users

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Background

Young adulthood is a critical developmental period marked by important transitions to adult roles and a time when cannabis use generally peaks: (Arnett, 2000; Bachman et al., 2002)

- In Australia, past year cannabis use was highest among 20-29 year olds (21%) (AIHW, 2014)

- Similarly, in the United States, past month prevalence was highest (19%) among 18 to 25 year olds (SAMHSA, 2014)

- In Europe, the highest levels of past year cannabis use (16%, on average) were among people aged 15 to 24 years (EMCDDA, 2009)

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Background

- Experimenting with cannabis use is characteristic of the years leading into young adulthood (Chen & Kandel, 1995)

- While a minority of young adults persist with cannabis use and may experience a range of harms (Swift et al., 2008; Hall, 2001), less entrenched users typically 'mature out' of use during this period (Chen & Kandel, 1995)

- This raises questions about the extent to which ceasing cannabis use during the peak period of experimentation may affect subsequent substance use and psychosocial outcomes

- While it is intuitively appealing to think that the risk of harm diminishes after quitting, research findings are conflicting

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Research questions

1. What is the potential benefit – if any – to stopping cannabis use in young adulthood?

2. Do those who stop do better than those who continue – even if only using occasionally?

Aims

1. To investigate the association between cannabis use status at age 23 years and substance use and mental health outcomes at age 27 years

2. To adjust the associations for a wide range of potential confounding factors

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Methods

- Data were analysed from two waves of the 20+ year cohort from the PATH Through Life Study (PATH); being undertaken by the Centre for Research on Ageing, Health and Well-being at the Australian National University (n=2404) (Rodgers et al., 2005)

- PATH is a community-based longitudinal survey of people randomly drawn from the electoral roll of the Australian Capital Territory and nearby Queanbeyan, NSW

- This study was based on 1410 lifetime cannabis users with complete data

Methods

Cannabis use status at age 23 years

Lifetime cannabis users were classified as:

- <u>Former users</u> (lifetime cannabis use but no use in the past 12 months)

- <u>Occasional users</u> (cannabis use ≤monthly in the past 12 months)

- <u>Regular users</u> (cannabis use weekly+ in the past 12 months)

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Outcomes at age 27 years

- Alcohol use (4+ times a week or <4 times a week; Alcohol Use Disorders Identification Tool (AUDIT))
- Current tobacco use (yes/no)
- Recent cannabis use (past 12 months cannabis use)
- Cannabis dependence symptoms (a two-item screen for cannabis use problems (Brown et al., 1997) was used as a proxy measure for cannabis dependence symptoms)
- Recent other illicit drug use (past 12 months use of ecstasy and amphetamines)
- Mental health impairment was assessed using the 12-item Short Form Health Survey (Ware et al., 1996)

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Background factors and other measures at age 23 years (covariates)

- Gender (male/female)

- Ethnicity (Caucasian/non-Caucasian)

- Parental divorce or separation during childhood (yes/no)

- Secondary schooling (completed/not completed)

- Employment (employed full-time or part-time/unemployed)

- Relationship status (single/divorced, de facto or married)

- Having children (yes/no)

- Age of first cannabis use (dichotomised to <16 years and ≥16 years)

- Frequency of alcohol use, current tobacco use, cannabis dependence symptoms, and mental health impairment were also included as covariates

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Statistical analyses

We used used binary logistic regression to estimate the association between cannabis use status at age 23 years and the outcomes assessed at age 27 years. The analyses included:

- A bivariable logistic regression model (Model 1)

- A multivariable logistic regression model which adjusted for potential confounding factors (Model 2)

- Occasional cannabis use was used as the reference category

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Associations between cannabis use status at age 23 years and outcomes at age 27 years (Model 1), and adjusted for potential confounding factors (Model 2)

Cannabis use status at age 23 years	Substance use and mental health outcome at age 27 years					
	Frequent alcohol use	Current tobacco use	Recent cannabis use	Cannabis dependence symptoms	Other illicit drug use	Mental health impairment
	(N=225)	(N=511)	(N=502)	(N=202)	(N=382)	(N=381)
Occasional use (N=483)						
N (%)[a]	73 (15.1)	179 (37.1)	223 (46.2)	62 (12.8)	170 (35.2)	144 (29.8)
OR	1	1	1	1	1	1
Former use (N=750)						
N (%)	100 (13.3)	211 (28.1)	118 (15.7)	25 (3.3)	103 (13.7)	174 (23.2)
Model 1,[b] OR (95% CI)	0.86 (0.62-1.20)	**0.67 (0.52-0.85)****	**0.22 (0.17-0.28)*****	**0.23 (0.15-0.38)*****	**0.29 (0.22-0.39)*****	**0.71 (0.55-0.92)***
Model 2,[c] OR (95%CI)	0.97 (0.67-1.34)	0.81 (0.58-1.12)	**0.24 (0.18-0.31)*****	**0.27(0.17-0.44)*****	**0.32 (0.24-0.43)*****	**0.76 (0.58-0.99)***
Regular use (N=177)						
N (%)	52 (29.3)	121 (68.4)	161 (90.9)	115 (64.9)	109 (61.6)	63 (35.6)
Model 1,[b] OR (95% CI)	**2.34 (1.55-3.51)*****	**3.67 (2.54-5.30)*****	**11.73(6.81-20.21)*****	**12.60 (8.38-18.94)*****	**2.95 (2.07-4.21)*****	1.30 (0.90-1.87)
Model 2,[c] OR (95%CI)	**1.65 (1.03-2.62)***	1.62 (1.01 -2.63)	**9.50 (5.41-16.68)*****	**9.53 (6.14-14.81)*****	**2.54 (1.73-3.74)*****	0.99 (0.67-1.49)

* p<0.05, ** p<0.01, *** p<0.001; OR=odds ratio; CI=confidence interval

[a] Percentage of group by cannabis use status with each outcome at age 27 years

[b] Model 1: OR from bivariable logistic regression model

[c] Model 2: OR from multivariable logistic regression model, adjusted for the following potential confounding factors assessed at age 23 years: gender, ethnicity, parental divorce in childhood, secondary schooling, employment, relationship status, having children, age of first cannabis use, frequency of alcohol use, current tobacco use, and mental health impairment; Other illicit drug use at age 23 years was not included as a potential confounding factor as these data were not collected.

Results

Compared to occasional cannabis users, **_former users_** had odds of, at age 27:

- tobacco use 33% ↓

- recent cannabis use 78% ↓

- cannabis dependence symptoms 77% ↓

- other illicit drug use 71% ↓

- mental health impairment 29% ↓

Compared to occasional cannabis users, **_regular users_** had odds of, at age 27:

- frequent alcohol use 2x ↑

- tobacco use 4x ↑

- recent cannabis use 12x ↑

- cannabis dependence symptoms 13x ↑

- other illicit drug use 3x ↑

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Conclusions

- Ceasing cannabis use by age 23 was associated with subsequent reductions in illicit drug use and mental health impairment even compared to infrequent, occasional use. Whereas regular cannabis use in young adulthood was associated with subsequent increases in licit and illicit drug use.

- While prevention and early intervention remain important, the findings provide support for interventions that actively target young adult cannabis users during the peak period of experimentation.

- It is an important message that the risk of certain adverse outcomes diminish when you stop using cannabis, and that cannabis use does not necessarily set you on a pathway to adverse outcomes.

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Acknowledgments

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