Factors associated with variability and stability of cannabis use in young adulthood

Edmund Silins[1], Delyse Hutchinson[1], Wendy Swift[1], Tim Slade[1], Barbara Toson[1], Bryan Rodgers[2]

[1] National Drug and Alcohol Research Centre, University of New South Wales, Sydney, Australia
[2] Australian Demographic and Social Research Institute, Australian National University, Canberra, Australia

Introduction

The literature on cannabis use is dominated by research that has focused on early-life and adolescent risk factors.[1] Few longitudinal studies have investigated factors in young adulthood which are associated with patterns of cannabis use after the peak period of experimentation.[2] This is important research as prevention programs are increasingly taking a developmental approach which recognises that opportunities to influence cannabis use pathways emerge throughout the life-course.[3,4]

Aim

To identify and compare the most important factors in young adulthood associated with initiating cannabis use, reverting to cannabis use and remaining a cannabis user.

Method

Data from two successive waves of the Path Through Life Study (PATH) were analysed (n=2,009). The longitudinal design enabled change in cannabis use in young adulthood (mean age 27 years) to be predicted based on factors assessed approximately four years prior (mean age 23 years).

At mean age 23 and 27 years, individuals were classified as: non-users (no lifetime cannabis use), former users (no cannabis use in the past 12 months), occasional users (cannabis use once a month or less in the past 12 months) and regular users (weekly or more frequent cannabis use in the past 12 months). From these groupings, four patterns of interest and four comparison groups were identified (Table 1).

Fourteen theoretically important factors associated with cannabis use were assessed at age 23 years.

Multivariable analyses determined the most important factors associated with each pattern of cannabis use. The odds ratio (OR) and 95% confidence interval (95%CI) were reported.

Table 1: Pattern of interest and comparison group identified among 2009 young adults

Pattern of interest/comparison group	Identification of pattern of interest and comparison group
Initiated use/always non-user	Non-users at age 23 years were selected and those who reported former, occasional or regular use at age 27 years (*initiated use*) were compared with those who were non-users at age 27 years (*always non-user*)
Reverted to use/always former user	Former users at age 23 years were selected and those who reported occasional or regular use at age 27 years (*reverted to use*) were compared with those who were former users at age 27 years (*always former user*)
Remained occasional user/ discontinued occasional use	Occasional users at age 23 years were selected and those who reported occasional use at age 27 years (*remained occasional user*) were compared with those who were former users at age 27 years (*discontinued occasional use*)
Remained regular user/discontinued regular use[a]	Regular users at age 23 years were selected and those who reported regular use at age 27 years (*remained regular user*) were compared with those who were occasional or former users at age 27 years (*discontinued regular use*)

[a] Disaggregation of occasional and former users was not possible due to small cell sizes

Results

Sample characteristics

Half the sample were male (47%), the majority were Caucasian (93%) and most had completed secondary school (92%). The mean age was 22.6 years (SD=1.50, range 20-26). One-third (30%) were tobacco smokers and 42% were heavy drinkers. One-fifth (20%) of lifetime cannabis users first used before age 16 years.

Pattern of cannabis use at age 23 years by age 27 years

Eight patterns of cannabis use were identified (Table 2).

Table 2: Pattern of cannabis use at age 23 years by age 27 years among 2009 young adults

Pattern of interest	Cannabis use at age 23 years	Cannabis use at age 27 years n (row %)[a]				
		Regular	Occasional	Former	Never	
Initiated use	Never	1 (0.2)	40 (6.5)	78 (12.6)	498 (80.7)	617 (100.0)
Reverted to use	Former	6 (0.8)	118 (15.6)	634 (83.6)	0	758 (100.0)
Remained occasional user	Occasional	-[b]	192 (42.2)	263 (57.8)	0	455 (100.0)
Remained regular user	Regular	93 (52.0)	70 (39.1)	16 (8.9)	0	179 (100.0)
						2009

[a] The pattern of interest corresponds to the sum of the shaded values in each row, and the comparison group corresponds to the sum of the unshaded non-zero values in each row
[b] This group excluded as too small for meaningful analysis (n=36)

Adjusted association of factors with pattern of cannabis use in young adulthood

Multivariable analyses which adjusted for age, gender, ethnicity and schooling found (Table 3):

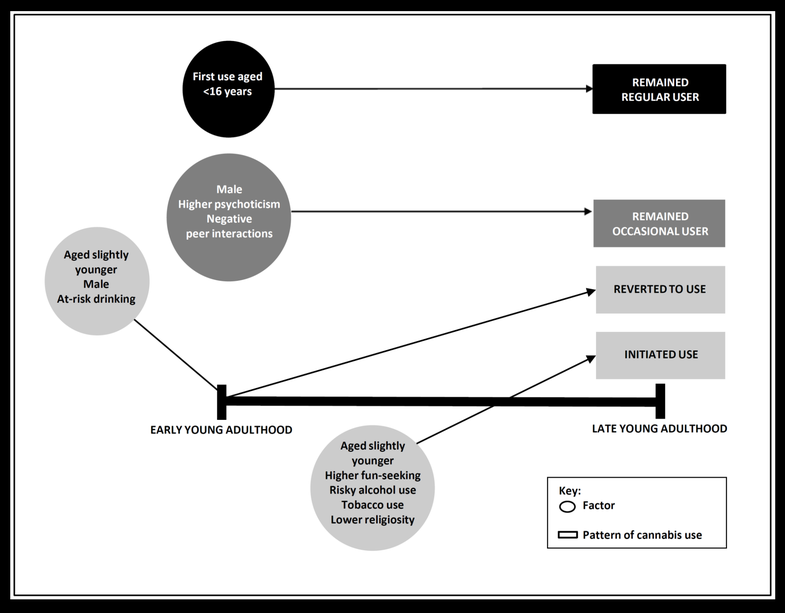
1. An environment of licit drug use was strongly associated with initiation of cannabis use and reverting to use in young adulthood.
2. Negative interactions with friends increased vulnerability to cannabis use and contributed to persistent use.
3. Greater fun seeking was found to orientate people towards initiating cannabis but was not significantly associated with reverting to use or remaining a user in young adulthood.
4. Higher psychoticism increased the likelihood of continuing with cannabis use.
5. The close connection between early cannabis use in adolescence and persistent heavy use in young adulthood was confirmed.
6. Religious involvement was found to be protective of cannabis initiation.

Table 3: Adjusted association of factors with pattern of cannabis use in young adulthood

Factor assessed at age 23 years[a]	Pattern of cannabis use in young adulthood[a]							
	Initiated use (n=119) versus always non-user (n=498)		Reverted to use (n=124) versus always former user (n=634)		Remained occasional user (n=192) versus discontinued occasional use (n=263)		Remained regular user (n=93) versus discontinued regular use (n=86)	
	OR	95%CI	OR	95%CI	OR	95%CI	OR	95%CI
Age in years[b]	0.86*	0.74, 0.99	0.85*	0.74, 0.97	0.95	0.83, 1.08	0.88	0.72, 1.08
Male gender[b]	1.46	0.95, 2.24	1.95**	1.31, 2.90	1.59*	1.07, 2.35	1.61	0.84, 3.10
Non-Caucasian ethnicity[b]	0.67	0.29, 1.55	0.78	0.33, 1.82	0.71	0.31, 1.63	1.30	0.36, 4.71
Secondary school non- completion[b]	1.81	0.61, 5.38	1.22	0.64, 2.31	1.83	0.87, 3.81	1.03	0.44, 2.42
Fun seeking	1.17**	1.05, 1.31						
Psychoticism					1.18**	1.06, 1.32		
At-risk drinking (AUDIT score[c])	1.90**	1.17, 3.07	1.86**	1.25, 2.78				
Current tobacco use	4.23***	2.01, 8.89						
Age of first cannabis use < 16 years		-					2.24*	1.21, 4.16
Negative interactions with peers	1.15*	1.01, 1.30			1.13*	1.01, 1.27		
Religiosity	0.89**	0.83, 0.96						

OR=odds ratio; CI=confidence interval; * $P<0.05$, ** $P<0.01$, *** $P<0.001$
[a] Comparison group for categorical variables not shown
[b] Forced entry term
[c] At-risk cut-point different for males (AUDIT score 8+) and females (AUDIT score 6+)

Figure 1: Diagrammatic summary of factors associated with variability and stability of cannabis use in young adulthood



Conclusion

The assessment of heavy alcohol use, tobacco use, interactions with peers, dimensions of personality and gender are important in identifying young adults at increased risk of initiating cannabis use, reverting to use and persisting with use (Figure 1).

Considerably more factors were significantly associated with initiation than with other patterns of cannabis use in young adulthood which suggest that early intervention is likely to provide the greatest opportunity to prevent ongoing problematic cannabis use in young adulthood.

Findings support broad-based cannabis interventions for young adults that include multi-substance and personality targeted strategies, conflict resolution skills and the promotion of health enhancing values.

Acknowledgements

The involvement of Trish Jacomb and the team at the Centre for Mental Health Research (Australian National University) is gratefully acknowledged.

References

[1] van den Bree M, Pickworth W. Arch Gen Psychiatry 2005;62:311-9. [2] Aitken S, DeSantis J, Harford T, et al J Subst Abuse 2000;12:213-26. [3] Toumbourou J, Stockwell T, Neighbors C, et al. Lancet 2007;369:1391-401. [4] Loxley W, Toumbourou JW, Stockwell T, et al. The prevention of substance use, risk and harm in Australia. Canberra: Commonwealth of Australia 2004.