

CANNABIS POTENCY EFFECTS ON PSYCHOTIC EXPERIENCES IN YOUNG ADOLESCENTS

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BACKGROUND

- In the past two decades the concentrations of THC in street cannabis have risen (Freeman et al., 2018), along with its availability (Potter et al., 2018).
- Frequent use of cannabis containing high concentrations of THC (i.e. high potency cannabis) is associated with an increased risk of psychotic disorder (Di Forti et al., 2015; 2019).
- It is unclear whether high potency cannabis is associated with psychotic experiences in a general population of adolescents who are not seeking treatment for mental health problems or cannabis use.



OBJECTIVES

- This study aimed to examine the prevalence of different types of cannabis in a general adolescent population sample.
- This study investigated the association between cannabis type and a range of psychotic experiences.
- Finally, we aimed to test whether increased risk of psychotic experiences associated with cannabis use would remain over and above tobacco use, sleep disturbance and victimisation.

METHODS

- 467 participants (56.1% male, mean age 16:8, SD = 7 mths) completed self-report questionnaires in school classrooms.
- Participants were first asked if they had used cannabis in previous 6-months and then asked to provide information on quantity and frequency for each type of cannabis:
 - Skunk (indoor grown)
 - Hash or Resin
 - Weed/Grass (outdoor grown)
 - Cannabis Oil/Concentrates



- Measures of psychotic experiences included paranoia (Freeman et al., 2005); visual and auditory hallucinations (Bell et al., 2006); cognitive disorganisation (Mason et al., 2005); grandiosity (Beck et al., 2006; Peter et al., 2004) and anhedonia (Gard et al., 2006).
- Additional measures included the Olweus Bully/Victim questionnaire (Olweus, 1996); sensation seeking subscale of the SURPS (Woicik et al., 2009); Pittsburgh Sleep Quality Index (Buysse et al., 1989). Questions on illicit drug use, tobacco use and alcohol use were included.

RESULTS

CANNABIS USE IN ADOLESCENTS

30.8% of adolescents in this sample reported using cannabis in the previous 6-months. Of those 69 (47.9%) reported using only low potency herbal cannabis, 30 (20.8%) reported using only high potency cannabis. The remaining 45 participants (31.3%) reported using both high and low potency cannabis types.

POPULATION SOCIO-DEMOGRAPHICS

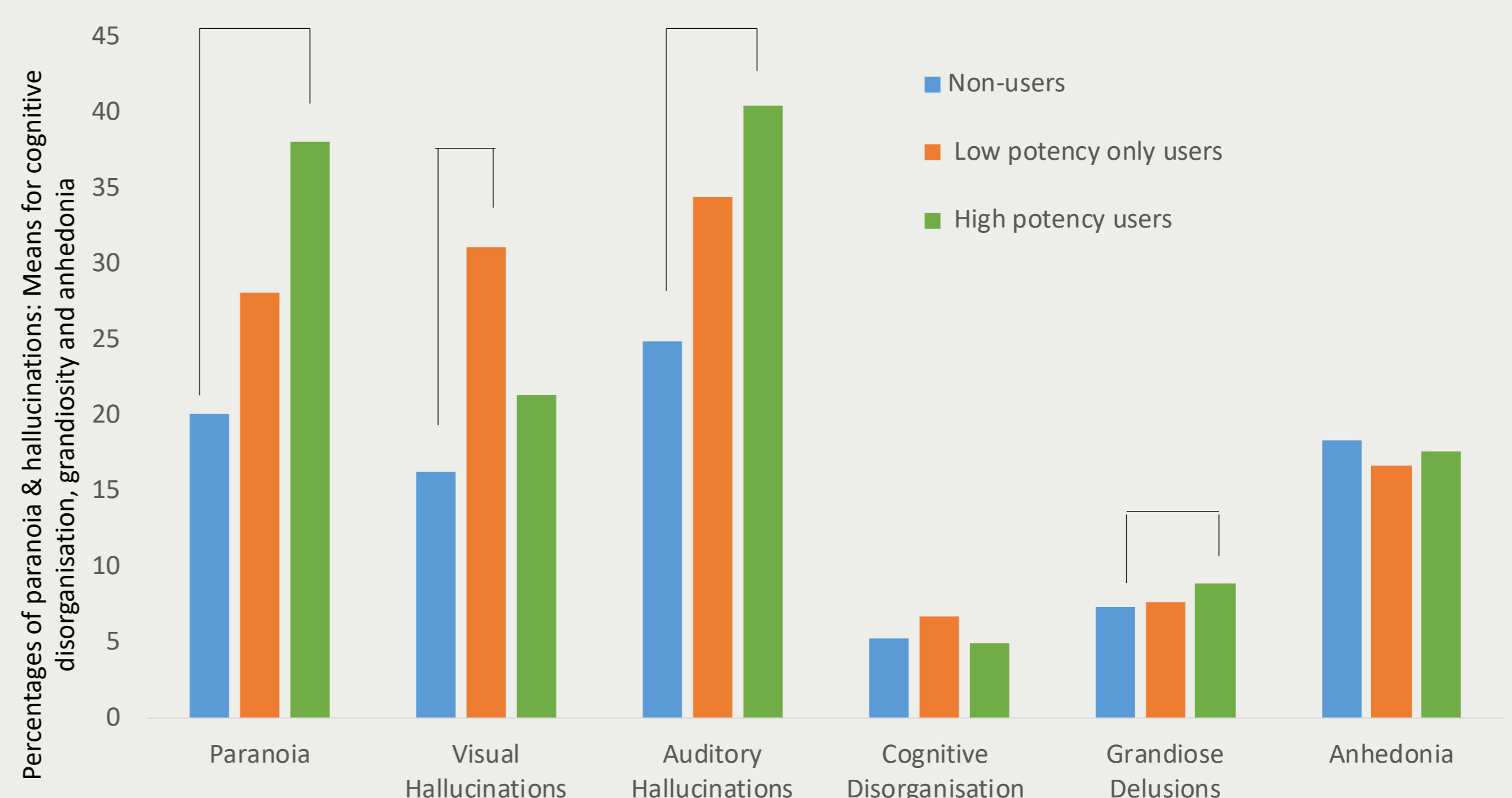
Differences occurred in SES, ethnicity, alcohol, cigarette, illicit drug use, sleep disturbance, sensation seeking and bullying between cannabis users of different types and between users and non-users

	Non-cannabis users (n=323)	Low potency only users (n=69)	High potency only users (n=30)	Mixed potency users (n=45)	p
Age, mean (s.d)	16.8 (0.76)	16.9 (0.85)	17.0 (0.81)	16.8 (0.76)	.30
Gender, male N %	136 (42.1)	27 (39.1)*	20 (66.7)*	22 (48.9)	.050
SES, mean (s.d)	2.77 (0.97)*	2.93 (0.75)	2.93 (1.36)	3.22 (0.90)*	.026
Ethnicity, white N (%)	70 (21.7)*	16 (23.2)	4 (13.3)*	20 (44.4)*	.001
Alcohol use N (%)	143 (44.3)*	41 (73.9)*	27 (90.0)*	39 (86.7)*	.001
Cigarette use N (%)	10 (3.1)*	6 (8.7)	5 (16.7)*	15 (26.7)*	.0001
Illicit drug use N (%)	6 (1.9)*	8 (11.6)*	2 (6.7)	9 (20.0)*	.0001
Sleep Disturbance	5.49 (3.30)	5.97 (3.97)	4.57 (3.15)*	7.36 (5.46)*	.029
Sensation Seeking	13.3 (3.16)*	14.3 (2.53)	13.9 (2.74)	14.9 (5.46)*	.001
Bullying, mean (s.d)	1.68 (1.74)*	1.70 (2.67)	1.06 (1.25)*	1.60 (1.89)	.024

Note. *Indicates significant differences.

FREQUENCY OF PSYCHOTIC EXPERIENCES ACCORDING TO CANNABIS USE

Low potency only users reported more visual hallucinations ($X^2 = 4.61$, $p = .032$), and scored higher in cognitive disorganisation ($t = -2.91$, $p = .004$) compared to non-users. High potency users reported more instances of paranoia ($X^2 = 6.68$, $p = .010$), auditory hallucinations ($X^2 = 4.27$, $p = .033$) and score higher in grandiosity ($t = -2.19$, $p = .033$).



ASSOCIATIONS BETWEEN CANNABIS USE TYPES AND PSYCHOTIC EXPERIENCES

Adolescents who consumed at least 2 joints of high potency cannabis monthly increased the risk of paranoid symptoms almost 3-fold compared to never having used cannabis (OR = 2.83, $p = .013$).

Paranoia	OR	95% CI	P
Non-users	1		
Low potency only	1.62	0.51-5.15	.41
High potency only	2.85	1.25-6.48	.013
Mixed Low & High potency	1.51	0.44-5.17	.51
Sleep Disturbance	3.07	2.52-3.72	.0001

Consuming 2 joints of high potency cannabis was found to be associated with an increased risk of reporting grandiose delusions ($B = 0.16$, $p = .037$). Consuming both high and low potency cannabis was also associated with grandiose delusions ($B = 0.34$, $p = .011$).

Grandiosity	B	95% CI	P
Non-users	1		
Low potency only	-0.06	-0.35-0.22	.59
High potency only	0.16	0.01-0.30	.037
Mixed Low & High potency	0.34	0.04-0.63	.032
Sensation Seeking	0.08	0.03-0.13	.011

CONCLUSIONS

- The odds of experiencing paranoia was **2.8 times** higher in adolescents who reported consuming at least 2 joints of high potency cannabis monthly compared to adolescents who had never used cannabis.
- Using low potency cannabis or combining high, low or resin cannabis was not associated with an increased risk of paranoia once sleep disturbance was accounted for.
- No significant association was demonstrated between cannabis use and hallucinations once sleep disturbance, tobacco use and victimisation were accounted for.

- Using high potency cannabis alone and in combination with other types was associated with increased reports of grandiosity.
- Our results stress the importance of accounting for cannabis type in the association with psychotic experiences.
- These findings have important implications for public health, it suggests the need for greater education about the potential harms of different forms of cannabis.