Latent class analysis of cannabis use characteristics and associations with problematic use outcomes, quitting-related factors, and mental health among US young adults

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INTRODUCTION

- Cannabis use trends, particularly in young adults, are changing in terms of frequency and type of product, and potency levels which can confer differential levels of misuse and dependence risk.
- LCA accounts for multiple co-occurring cannabis use behaviors to inform prevention and regulatory efforts to protect consumers.

METHODS

- We analyzed 2023 survey data among 4,031 US young adults (ages 18-34; M_{age}=26.29, 59.4% female, 27.4% sexual minority, 19.0% Hispanic, 13.5% Black, 13.6% Asian) with nearly half reporting past-month cannabis use (48.8%).
- Among those reporting past-month use, latent class analysis (LCA) indicators included: days used (1-5; 6-20; 21-30), use/day (1; 2-4; ≥5), and most frequent type used (herb/flower; edibles; oils/vape; concentrates/other).
- Multivariable regressions examined use class in relation to problematic use, quitting-related factors, and mental health, controlling for socio-demographics and state non-medical cannabis laws.

RESULTS

Table 3. Multinomial logistic regression assessing sociodemographic correlates of cannabis use class among US young adults reporting past 30-day use (N=1,968)

	Frequent (vs. Infrequent)			Moderate-herb (vs. Infrequent)			Moderate-oil/other (vs. Infrequent)		
Variables	**aOR**	**95% CI**	**p-value**	**aOR**	**95% CI**	**p-value**	**aOR**	**95% CI**	**p-value**
State non-medical cannabis law									
Legalized (ref: not legalized)	1.19	0.89,1.58	.241	1.01	0.80, 1.28	.934	1.11	0.83, 1.49	.485
Sociodemographics									
Age	1.07	1.03, 1.10	<.001	1.03	1.003, 1.06	.030	1.00	0.97, 1.04	.826
Male sex (ref: female)	1.66	1.22, 2.27	.001	1.47	1.15, 1.90	.003	1.21	0.89, 1.65	.226
Bisexual, lesbian/gay, other (ref: heterosexual)	1.19	0.88, 1.62	.252	1.00	0.78, 1.29	.979	0.81	0.59, 1.11	.190
Hispanic (ref: non-Hispanic)	0.78	0.54, 1.14	.198	0.93	0.69, 1.24	.601	1.14	0.80, 1.63	.459
Race (ref: White)									
Black	1.59	1.10, 2.32	.015	1.75	1.28, 2.40	.001	1.74	1.18, 2.57	.005
Asian	0.22	0.76, 0.61	.004	0.53	0.32, 0.86	.011	0.94	0.56, 1.56	.806
Other	0.75	0.44, 1.28	.291	1.15	0.76, 1.74	.512	1.18	0.70, 1.99	.535
Education ≥Bachelor's degree (ref: <)	0.19	0.13, 0.28	<.001	0.40	0.31, 0.54	<.001	0.64	0.46, 0.91	.011
Employment status (ref: full-time)									
Part-time	0.60	0.39, 0.95	.027	0.99	0.70, 1.41	.963	1.08	0.71, 1.65	.716
Student	0.62	0.40, 0.97	.037	0.93	0.66, 1.30	.666	0.88	0.59, 1.32	.542
Unemployed	1.41	0.98, 2.03	.067	1.30	0.94, 1.80	.110	0.82	0.53, 1.26	.359
Community type (ref: rural)									
Micropolitan (10,000-49,999)	0.76	0.51, 1.12	.168	1.16	0.83, 1.63	.398	0.58	0.38, 0.88	.010
Urban (50,000+)	0.87	0.60, 1.25	.444	1.23	0.88, 1.70	.222	0.73	0.50, 1.07	.110
Relationship (ref: single/other)									
Married	0.58	0.37, 0.89	.014	0.85	0.61, 1.20	.359	0.74	0.49, 1.12	.158
Cohabitating	1.64	1.16, 2.31	.005	1.49	1.11, 2.00	.009	0.98	0.67, 1.44	.909
Parent/has child(ren) (ref: no)	1.93	1.37, 2.71	<.001	1.85	1.39, 2.47	<.001	1.84	1.29, 2.63	.001
	Frequent (vs. Moderate-herb)			**Moderate-oil/other (vs. Moderate-herb)**			**Moderate-oil/other (vs. Frequent)**		
	aOR	**95% CI**	**p**	**aOR**	**95% CI**	**p**	**aOR**	**95% CI**	**p**
State non-medical cannabis law									
Legalized (ref: not legalized)	1.18	0.88, 1.57	.269	1.10	0.81, 1.49	.548	0.94	0.66, 1.32	.701
Sociodemographics									
Age	1.03	1.00, 1.07	.060	0.97	0.94, 1.00	.143	0.94	0.90, 0.98	.004
Male sex (ref: female)	1.13	0.82, 1.54	.457	0.82	0.59, 1.14	.240	0.73	0.50, 1.06	.097
Bisexual, lesbian/gay, other (ref: heterosexual)	1.19	0.88, 1.62	.266	0.81	0.58, 1.13	.206	0.68	0.47, 0.98	.041
Hispanic (ref: non-Hispanic)	0.85	0.59, 1.23	.387	1.24	0.85, 1.80	.267	1.46	0.94, 2.25	.090
Race (ref: White)									
Black	0.91	0.64, 1.30	.601	0.99	0.68, 1.46	.977	1.09	0.71, 1.68	.685
Asian	0.41	0.14, 1.24	.113	1.79	0.95, 3.36	.072	4.35	1.43, 13.23	.010
Other	0.65	0.38, 1.11	.115	1.03	0.60, 1.75	.923	1.58	0.84, 2.97	.158
Education ≥Bachelor's degree (ref: <)	0.47	0.31, 0.71	<.001	1.59	1.10, 2.31	.014	3.40	2.13, 5.44	<.001
Employment status (ref: full-time)									
Part-time	0.61	0.39, 0.96	.031	1.09	0.70, 1.69	.701	1.79	1.07, 2.99	.027
Student	0.67	0.42, 1.06	.087	0.95	0.62, 1.47	.819	1.42	0.84, 2.39	.187
Unemployed	1.08	0.76, 1.55	.671	0.63	0.41, 0.97	.035	0.58	0.37, 0.92	.021
Community type (ref: rural)									
Micropolitan (10,000-49,999)	0.66	0.44, 0.97	.035	0.50	0.33, 0.78	.002	0.77	0.48, 1.23	.265
Urban (50,000+)	0.71	0.49, 1.02	.065	0.60	0.40, 0.89	.012	0.85	0.55, 1.30	.447
Relationship (ref: single/other)									
Married	0.67	0.43, 1.05	.083	0.87	0.56, 1.35	.528	1.29	0.77, 2.16	.339
Cohabitating	1.10	0.79, 1.54	.566	0.66	0.45, 0.97	.036	0.60	0.39, 0.91	.017
Parent/has child(ren) (ref: no)	1.04	0.75, 1.45	.814	0.99	0.69, 1.43	.970	0.95	0.64, 1.43	.820

Notes: aOR: adjusted odds ratio. CI: confidence interval. Nagelkerke R-square=.203.

DISCUSSION

- Even moderate use of more potent products (e.g., concentrates) can reflect risks similar to or greater than frequent use of less potent products (e.g., herb).
- 'Infrequent' use class generally showed the least risk outcomes while the 'moderate-oil/other' class reported the most problematic use and mental health symptoms.
- 'Moderate-oil-other' class reported the highest importance of quitting but were the least confident and were more likely to drive after cannabis-alcohol co-use relative to 'infrequent' and 'moderate-herb' classes. 'Frequent' class showed similarities to 'moderate-herb' including likelihood of driving after cannabis use, importance of quitting, and mental health.
- **Limitations**: Limited in generalizability, given social-media based recruitment and purposive sampling of ~50% young adults reporting past-month cannabis use; Self-reported bias; Cross-sectional data precludes casual inference.
- **Conclusions & Implications:** Even moderate use of high-potency cannabis products can carry risks equal to or greater than frequent use of less potent varieties. This finding underscores the need for preventive strategies of both frequent and moderate use, particularly of oils and concentrates, to reduce the likelihood of mental health issues, problem cannabis use, and related injuries, including those from motor vehicle accidents.

Scan for References