

Risk and Protective Factors Associated with Cannabis Use in Massachusetts Youth

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Background

Cannabis policies are continuously evolving, over half of U.S. youth now live in a state with a form of legalized cannabis. Monitoring risk and protective factors is critical to ensure evidence-based youth prevention in this post cannabis-prohibition era.

Massachusetts Legalization Timeline



All waves of Massachusetts cannabis legalization were enacted via ballot initiatives and not all provisions were immediately implemented.

Methods

- Utilized Youth Risk Behavior Survey (YRBS) data for Massachusetts students in grades 9-12 from 2007-2017 (N=17,691).
- Logistic regression models were run to assess effects of varying cannabis policy and risk or protective behaviors on cannabis use outcomes: (1) Lifetime use; (2) Past 30-day; and (3) Past 30-day heavy use.
- Sensitivity analyses were run to examine if policy change moderated risks.

Results

Multiple risk factors are associated with Massachusetts' youth cannabis use; the majority are not sensitive to cannabis policy enactment.

Table 1. Policy Impact on Cannabis Use

Cannabis Policy	Decriminalization Adjusted ⁺ OR (95% CI)	Medical Cannabis Policy Adjusted ⁺ OR (95% CI)	Adult-Use Cannabis Policy Adjusted ⁺ OR (95% CI)
Lifetime cannabis use	1.00 (0.85-1.19)	0.92 (0.82-1.04)	0.85 (0.73-0.98)
Past 30-day cannabis use	1.08 (0.89-1.31)	0.92 (0.83-1.02)	0.92 (0.80-1.05)
Past 30-day heavy cannabis use	1.14 (0.88-1.46)	0.79* (0.66-0.95)	0.71** (0.56-0.89)
Past 30-day cannabis use at school	1.06 (0.85-1.31)	0.81* (0.69-0.96)	0.89 (.69-1.15)

p<0.05; **p<.01; ***p<.001

Conclusion

Cannabis prevention efforts should not occur in a silo, rather evidence-based models for reducing risky behaviors generally may have the largest impact. Building and supporting relationships with trusted adults should be emphasized.

Table 2. Risk and Protective Factors

Green: Moderated by cannabis policy change

	Any Use		Past 30-Day Use		Past 30-Day Heavy Use (≥20 times) ^a	
	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)	Adjusted ⁺ OR	(95%CI)
Disability						
Learning Disability	1.34***	(1.13-1.58)	1.33***	(1.14-1.56)	1.58**	(1.20-2.07)
Physical Disability	1.14*	(1.02-1.28)	1.12	(0.96-1.31)	1.26	(0.96-1.65)
Driving Behaviors						
Ride with driver who had been drinking (past 30-day)	3.91***	(3.58-4.27)	4.13***	(3.79-4.49)	4.62***	(4.04-5.29)
Drive after drinking alcohol (past 30-day)	2.15***	(1.95-2.39)	2.33***	(2.05-2.64)	3.07***	(2.59-3.65)
Text or email while driving (past 30-day)	3.67***	(3.22-4.18)	2.74***	(2.33-3.22)	2.28***	(1.80-2.90)
Talk on cell phone while driving (past 30-day)	3.25***	(2.74-3.86)	2.67***	(2.23-3.20)	2.11***	(1.63-2.74)
Weapon carrying/exposure, violence, and bullying						
Carry weapon (past 30-day)	3.59***	(3.22-4.01)	3.54***	(3.15-3.97)	4.33***	(3.73-5.02)
Carry weapon on school property (past 30-day)	4.61***	(3.61-5.89)	4.66***	(3.82-5.69)	5.72***	(4.75-6.89)
Carry gun (past 30-day)	4.48***	(3.44-5.84)	4.55***	(3.42-6.05)	6.69***	(4.99-8.98)
Threatened or injured with weapon on school property (past 12-month)	3.30***	(2.76-3.95)	3.29***	(2.68-4.04)	4.07***	(3.35-4.94)
Physical fight (past 12-month)	3.92***	(3.55-4.33)	3.82***	(3.50-4.18)	4.82***	(4.35-5.35)
Bullied on school property (past 12-month)	1.52***	(1.37-1.69)	1.49***	(1.32-1.69)	1.51***	(1.28-1.79)
Sexual and Dating Violence						
Physically forced to have sex (lifetime)	2.64***	(1.93-3.63)	2.43***	(1.83-3.21)	3.29***	(2.05-5.27)
Physically forced to have sex or physical dating violence (lifetime)	2.83***	(2.57-3.12)	2.28***	(2.24-2.74)	2.84***	(2.43-3.21)
Support, Hopelessness, and Suicide Behaviors						
Hopelessness (past 12-month)	2.22***	(2.01-2.46)	2.03***	(1.82-2.25)	2.42***	(2.11-2.79)
Consider suicide (past 12-month)	2.35***	(2.06-2.68)	2.32***	(2.05-2.62)	2.43***	(2.09-2.82)
Plan suicide (past 12-month)	2.08***	(1.86-2.33)	2.0***	(1.77-2.26)	2.13***	(1.77-2.55)
Attempt suicide (past 12-month)	2.72***	(2.29-3.23)	2.61***	(2.22-3.07)	3.15***	(2.61-3.81)
Treated for suicide attempt (past 12-month)	3.18***	(2.34-4.33)	3.05***	(2.32-4.02)	4.34***	(3.24-5.81)
Purposely hurt yourself (past 12-month)	2.34***	(2.10-2.59)	2.24***	(2.02-2.49)	2.48***	(2.05-3.01)
Sexual Orientation and Behaviors						
Sexual intercourse (lifetime)	7.20***	(6.52-7.95)	5.94***	(5.33-6.62)	8.10***	(6.55-10.02)
Age first sexual intercourse encounter	1.28***	(1.25-1.30)	1.22***	(1.20-1.25)	1.19***	(1.15-1.23)
Sex partners (past 90-days)	2.44***	(2.31-2.57)	2.03***	(1.93-2.13)	1.85***	(1.76-1.95)
Alcohol or drug use before sexual intercourse last time	12.26***	(10.22-14.70)	8.76***	(7.56-10.15)	9.46***	(8.13-11.01)
Condom use last sexual encounter	3.20***	(2.85-3.58)	2.63***	(2.37-2.92)	2.05***	(1.76-2.40)
Ever been or gotten someone pregnant (lifetime)	4.46***	(3.64-5.47)	3.20***	(2.70-3.79)	4.64***	(3.89-5.53)
Ever been tested for any Sexually Transmitted Disease(s) (STDs) (lifetime)	2.74***	(2.50-3.0)	2.24***	(2.00-2.50)	2.65***	(2.25-3.13)
Sexuality- Heterosexual ("straight")	0.48***	(0.42-0.55)	0.50***	(0.44-0.58)	0.42***	(0.34-0.51)
Sexuality- Gay, Lesbian, or Bisexual	2.08***	(1.81-2.39)	1.99***	(1.72-2.30)	2.39***	(1.96-2.91)
Other Risk/Protective Factors						
Any adult support (family or other)	0.58***	(0.50-0.67)	0.56***	(0.50-0.63)	0.43***	(0.37-0.50)
Physically active (past week)	0.95	(0.86-1.06)	0.97	(0.87-1.08)	0.68***	(0.57-0.81)
Sports team involvement (past 12-month)	0.94	(0.86-1.03)	0.89*	(0.81-0.98)	0.60***	(0.52-0.69)
Play video games on average school day	0.89**	(0.82-0.97)	0.95	(0.86-1.04)	0.86*	(0.77-0.98)
Watch TV on average school day	0.95	(0.88-1.03)	0.93	(0.85-1.03)	0.86	(0.71-1.05)
Grades are A's and B's	0.34***	(0.34-0.38)	0.34***	(0.30-0.38)	0.25***	(0.21-0.29)

^aAdjusted for: (1) Year of data collection (2007-2017); (2) Sex [1- Female; 2- Male; Missing]; and (3) Race/Ethnicity [1- American Indian/Alaska Native; 2- Asian; 3- Black or African American; 4- Native Hawaiian/Other PI; 5- White; 6- Hispanic/Latino; 7- Multiple-Hispanic; 8- Multiple-Non-Hispanic]

*p<0.05; **p<.01; ***p<.001

^bNA refers to measures that were not included in survey instrument during one or more policy intervention (e.g. measure only included in post decriminalization survey years, 2013-2017)

