Marijuana-related beliefs in adolescents: Moving beyond perceived riskiness of marijuana use

Nicholas Chadi[1,2], MD, MPH; Sharon Levy[1,2], MD, MPH, PhD; Elissa R. Weitzman[2,3], ScD, MSc

[1]Division of Developmental Medicine, Boston Children's Hospital, Boston, MA [2]Department of Pediatrics Harvard Medical School, Boston, MA [3]Division of Adolescent/Young Adult Medicine, Boston Children's Hospital, Boston, MA

Background

- Perceived riskiness of marijuana in adolescents has been trending downward in the context of increasing legality and availability.[1]

- Low perceived riskiness has been associated with marijuana use though evidence is lacking on associations among use and more specific claims about marijuana's safety and benefit.[2]

- Improved understanding of the associations between health-related marijuana beliefs and marijuana use among youth could help guide clinical interventions to reduce marijuana use in this population.

Objectives

- To examine associations between specific marijuana-related beliefs and marijuana use among adolescents, testing the hypothesis that positive marijuana-related beliefs in addition to lower perceived riskiness of marijuana use would be associated with use.

Methods

- We analyzed cross-sectional survey data collected from 502 adolescents aged 14-18 years recruited from an urban adolescent primary care clinic in Boston, MA

- Self-report questionnaires were administered via tablet computer.

- Use of marijuana was assessed with the validated Screening to Brief Intervention (S2BI) screening tool.[3]

- Agreement with each of five statements about marijuana's riskiness and health properties were reported using a four-point Likert scale.

- We conducted multivariable logistic regressions to determine the association between perceived riskiness and other marijuana-related beliefs and past-year marijuana use.

- Regression models were adjusted for socio-demographic factors, mood/anxiety symptoms and use of other substances.

Results

Table 1: Descriptive statistics of study participants by marijuana use in the past year

	Total N (%)	No MJ use N (%)	Once or twice N (%)	Monthly or more N (%)	P value
		Past year marijuana use			
Total	502	354 (70.3)	78 (15.5)	71 (14.2)	
Age					<.0001
14 years	**81 (16.1)**	73 (90.1)	5 (6.2)	3 (3.7)	
15 years	**94 (18.7)**	76 (80.9)	12 (12.8)	6 (6.4)	
16 years	**118 (23.5)**	82 (69.5)	20 (17.0)	16 (13.6)	
17 years	**144 (28.7)**	87 (60.4)	28 (19.4)	29 (20.1)	
18 years	**65 (13.0)**	35 (53.9)	13 (20.0)	17 (26.1)	
Gender					0.5341
Female	**329 (65.5)**	224 (68.1)	54 (16.4)	51 (15.5)	
Male	**165 (32.9)**	121 (73.3)	24 (14.6)	18 (12.2)	
Other	**8 (1.6)**	8 (100)	0 (0)	0 (0)	
Race/ethnicity					0.7217
White, non- Hispanic	**122 (24.3)**	88 (72.1)	19 (15.6)	15 (12.3)	
Other race/ethnicity	**380 (75.7)**	265 (69.7)	59 (15.5)	56 (14.8)	
Parental education					0.0183
No college degree/unknown	**253 (50.4)**	176 (69.6)	38 (15.0)	39 (15.4)	
4-year college degree	**249 (49.6)**	177 (71.1)	40 (16.1)	32 (12.8)	
Any past year substance use					
Alcohol	**184 (36.7)**	71 (38.6)	57 (31.0)	56 (30.5)	<.0001
Tobacco or e-cigarette	**61 (12.2)**	13 (21.3)	21 (34.4)	17 (44.2)	<.0001
Prescription medicine	**38 (7.6)**	16 (42.1)	8 (21.1)	14 (36.9)	<.0001

Table 2: Association between positive and negative marijuana-related beliefs and past-year use of marijuana

	Frequency	Adjusted odds ratio of reporting past-year use of marijuana (vs no use)
Outcome	N (%)	OR (95% CI)
Marijuana can help some teenagers focus and do better in school		
Strongly disagree/disagree	314 (62.5)	Ref
Agree/strongly agree	188 (37.5)	5.50 (3.06 - 9.88)
Marijuana is safe because it is natural		
Strongly disagree/disagree	360 (71.7)	Ref
Agree/strongly agree	142 (28.3)	6.61 (3.59 - 12.19)
Marijuana can affect you even after you don't feel high anymore		
Strongly disagree/disagree	140 (27.9)	Ref
Agree/strongly agree	362 (72.1)	0.56 (0.31-0.99)
Marijuana can be addictive		
Strongly disagree/disagree	99 (19.7)	Ref
Agree/strongly agree	403 (80.3)	0.30 (0.16-0.56)
Perceived riskiness of marijuana use at least once a week		
No risk/slight risk	167 (33.3)	Ref
Moderate risk/high risk	335 (66.7)	0.27 (0.15-0.48)

Discussion

Main findings:

- We found a significant association between marijuana-related health beliefs and past-year marijuana use such that:

  - Youth who report greater agreement with **positive health statements** are more likely to report marijuana use

  - Youth who report greater agreement with **negative health statements** were less likely to report marijuana use.

Study limitations:

- Our study results were limited by the fact that substance use was self-reported

- Study response rate was < 50%, introducing the possibility of bias towards a lower risk sample

- Participants were recruited from a single site and were mostly female and non-White

- Our study was cross-sectional which did not allow us to determine the temporal relationship between beliefs and marijuana use

Conclusions

- Marijuana use varied in association with beliefs about its beneficial and harmful health properties.

- Clinical interventions that target specific marijuana-related health beliefs including unfounded claims of benefit may provide robust talking points for centering provider guidance and public health messaging.

References

1. Miech R, Johnston L, O'Malley PM. Prevalence and Attitudes Regarding Marijuana Use Among Adolescents Over the Past Decade. Pediatrics. 2017;140(6):e20170982. doi:10.1542/peds.2017-0982.Estoup AC, Moise-Campbell C, Varma M, Stewart DG. The

2. Impact of Marijuana Legalization on Adolescent Use, Consequences, and Perceived Risk. Subst Use Misuse. 2016;51(14):1881-1887. doi:10.1080/10826084.2016.1200623.

3. Levy S, Weiss R, Sherritt L, et al. An electronic screen for triaging adolescent substance use by risk levels. JAMA Pediatr. 2014;168(9):822–828pmid:25070067

Acknowledgements