



Preteen Marijuana Use: Harmless or Harmful?

Youssef Mahfoud, M.D., Sam M. Schwendiman, M.D., Christina M. Delos Reyes, M.D., Jennifer L. Murphy, B.A., Shannon M. Johnson, B.A., Maria E. Pagano, Ph.D.

Department of Psychiatry, Case Western Reserve / University Hospitals Case Medical Center, Cleveland, OH

INTRODUCTION:

- Marijuana (MJ) = #1 illicit substance used by adolescents
 - Cheap, widely available, considered harmless
 - MJ Use: 16% of 8th graders, 46% of 12th graders¹
- Preteen MJ Use (PMU) →
 - Psychiatric comorbidity²
 - Psychosocial impairment
 - Legal problems
 - School dropout³⁻⁵
 - Impedes brain development during adolescence
- Emerging policies are legalizing MJ use
- Lack of empiricism of potential harms from PMU
- Study Aims:
 - Aim 1: Confirm harmful outcomes associated with PMU
 - Aim 2: Explore potential precursors of PMU

METHODS:

- SUBJECTS and PROCEDURES:**
 - Inclusion: DSM-IV Dx for SDD
 - Exclusion: Severe organic impairment, current suicidality/homicidality
 - Medically detoxed prior to admission
- MEASURES:**
 - Gathered by Multiple informants: rater administered assessments, youth reports, parent reports, clinician reports, medical records
 - PMU defined : first use of MJ < 13years⁶
 - MINI-Plus: DSM IV diagnosis, age of first use, suicidality
 - Teen Treatment Services Review: Legal involvement
 - Time Line Follow-Back Interview: Level of substance consumption

STATISTICAL ANALYSIS:

- Univariate comparisons using Fisher's Exact Test or Kruskal-Wallis Chi-Square Test
- Forward step-wise regression predicting PMU
- Predictor variables: Variables associated with PMU from univariate analyses
- Main effects entered first followed by interaction terms with PMU

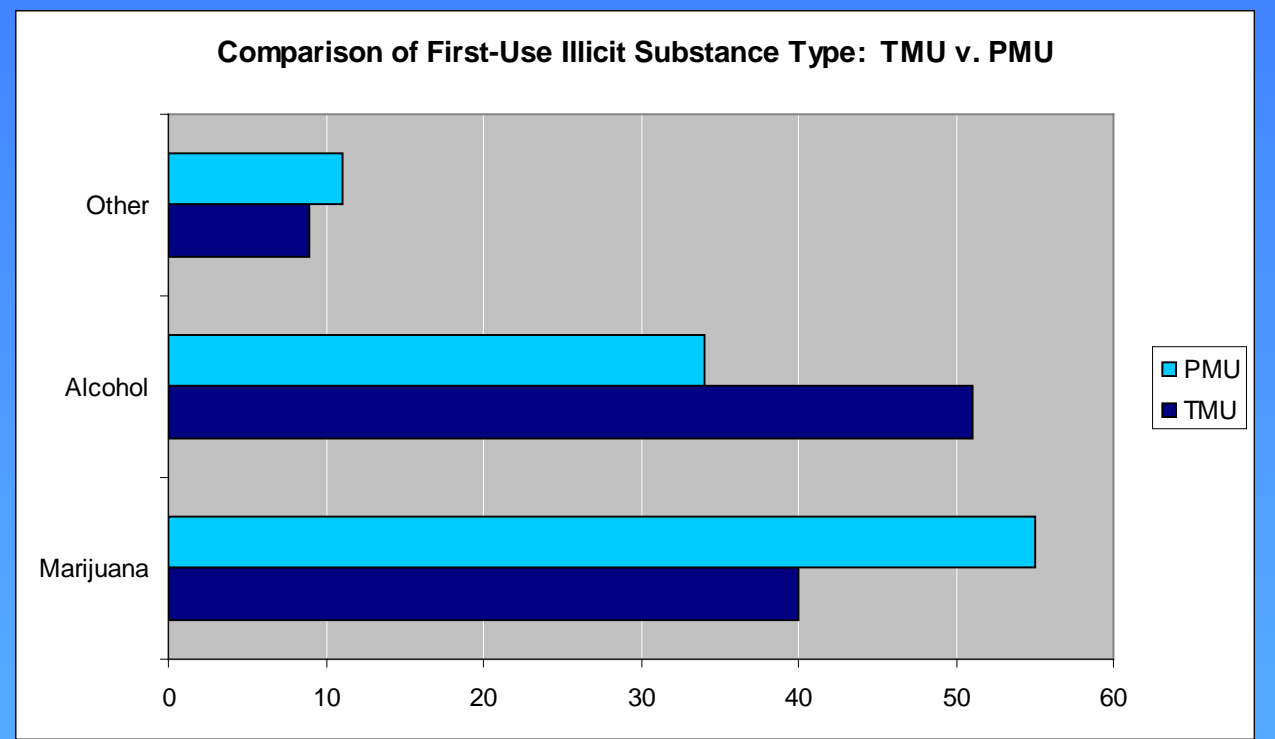
RESULTS:

- Sample Characteristics (Table 1)
 - N=136 youth with Substance Dependence Disorder (SDD)
 - Aged 14-18
 - 48% female
 - 57% from single parent households
 - 53% with parental SDD
 - 34% minority
- Rates of SDD (Table 2)
 - 85% MJ dependent
 - 42% first use MJ as preteen
 - 77% Nicotine dependent
 - 56% Alcohol dependent
- Characteristics associated with PMU when entering treatment (Aim 1):
 - Younger
 - MJ dependent
 - Hallucinogen dependent
 - More comorbid SDDs
 - Smoke more
 - More traffic violations
 - Current PTSD
- Potential precursors of PMU (Aim 2):
 - Hispanic
 - Less educated parents
 - History of PTSD
 - Suicide attempts
 - MJ = 1st substance used

- Majority (55%) of PMU adolescents with SDD first used MJ (Figure 1)
 - 75 of 136 in this sample

DISCUSSION:

- This study supports a significant relationship between PMU and poor outcomes:
 - Largest clinical sample of substance dependent youths equally balanced by gender
 - PMU → enter Tx with more impairment
 - More comorbid SDDs
 - MJ and hallucinogen dependent
 - Smoke more
 - Younger
 - More suicide attempts
 - Current PTSD
 - History of traffic violations
- Study Limitations:
 - Retrospective
 - Treatment-seeking population
 - Identified predictors of PMU may be related to unmeasured condition (i.e. depression)
- Identified potential precursors of PMU suggestive of environmental stressors
- MJ is most likely to be first substance used by preteen youth
- Future Directions:
 - Identify age of first use prospectively
 - Need to follow the sample to determine:
 - If improvement in outcomes is seen after Tx
 - If preteen MJ is associated with less response to Tx
 - Adolescent brain growth is at its peak at age 12, a vulnerable threshold age as shown by results of this study; future work warranted on brain growth interference associated with PMU
 - Evidence could inform policies re: legalizing marijuana use



Background Variable	Level	Preteen Marijuana Use		
		No	Yes	
		Total (N,%)	No (N=79(58%))	Yes (N=57(42%))
Gender	M	64(47%)	38(48%)	26(46%)
	F	72(53%)	41(52%)	31(54%)
Race	Non-Minority	90(66%)	52(66%)	38(67%)
	Minority	46(34%)	27(34%)	19(33%)
Ethnicity	Hispanic	10(7%)	2(3%)	8(14%)
	Non-Hispanic	126(93%)	77(97%)	49(86%)*
Single Parent Household	Yes	78(57%)	43(54%)	26(46%)
Grade	Middle School	6(4%)	0(0%)	6(11%)
	Junior High	71(52%)	37(47%)	34(60%)
	Senior High	54(40%)	23(29%)	16(28%)
	High School Graduate	1(1%)	1(1%)	0(0%)
	Drop out	4(3%)	3(4%)	1(2%)
Years of Education (Parent)	8th grade or less	2(1%)	5(6%)	1(2%)
	Partial high school	10(8%)	2(2%)	8(14%)*
	HS diploma/GED	42(32%)	22(28%)	20(35%)
	Some college	38(29%)	21(27%)	17(30%)
	BA+	40(30%)	29(37%)	11(19%)
Parental History of SDD	Yes	73(54%)	39(49%)	34(60%)*
	No	63(46%)	40(51%)	15.86(1.08)**
Age at Treatment	M(SD)	16.23(1.10)	16.49(1.05)	**

*p<.05 **p<.01 ***p<.001

Status	Preteen Marijuana Use		
	No	Yes	
	Total (100%)	N=79(58%)	N=57(42%)
Alcohol Dependency	76(56%)	48(61%)	38(67%)
Substance Dependency	125(92%)	70(89%)	55(96%)
Stimulants	35(26%)	20(25%)	15(26%)
Cocaine	44(32%)	23(29%)	21(15%)
Narcotics	43(32%)	22(28%)	21(37%)
Hallucinogens	46(34%)	21(27%)	25(44%)*
Inhalants	9(7%)	5(6%)	4(7%)
Marijuana	115(85%)	61(77%)	54(95%)**
Tranquilizers	29(21%)	13(16%)	16(28%)
Total # of substances	2.94(2.13)	2.59(2.00)	3.42(2.22)*
Nicotine Use	105(77%)	60(76%)	45(79%)
Total Days of Use in the Past Month	17.04(12.09)	15.96(12.26)	18.5(11.81)
Cigarettes per day (M,SD)	8.99(8.78)	7.54(7.05)	10.98(10.50)*
Time after waking to first use (M,SD)	154.70(293.00)	181.86(316.69)	117.05(254.52)

*p<.05 **p<.01 ***p<.001

REFERENCES:

- Johnson LD, O'Malley PM, Bachman JG, et al. Overall teen drug use continues gradual decline; but use of inhalants rises. *Ann Arbor, MI: University of Michigan News and Information Services*; (December 21,2004)
- Armstrong TD, Costello EJ. Community studies on adolescent substance use, abuse, or dependence and psychiatric comorbidity. *J Consult Clin Psychol.* 2002 Dec;70(6):1224-39.
- Hayatbakhsh MR, Najman JM, Jamrozik K, Mamun AA, Alati R, Bor W. Cannabis and anxiety and depression in young adults: a large prospective study. *J Am Acad Child Adolesc Psychiatry.* 2007 Mar; 46(3):408-17.
- Lynskey M, Hall WD. The effects of adolescent cannabis use on educational attainment: a review. *Addiction.* 2000; 96:433-443.
- Foley JD. Adolescent Use and Misuse of Marijuana. *Adolesc Med Clin.* 2006;17 :319 -334.
- Rothman E et al. Adverse Childhood Experiences Predict Earlier Age of Drinking Onset: Results from Representative US Sample of Current or Former Drinkers. *Pediatrics.* 2008, 22, 298-304.

	Preteen Marijuana Use		
	No	Yes	
	Total (100%)	N=79(58%)	N=57(42%)
Current Anxiety Disorder Status			
Panic	8(6%)	5(6%)	3(5%)
Agoraphobia	17(13%)	11(14%)	6(11%)
Social Phobia	16(12%)	11(14%)	5(9%)
Obsessive Compulsive	5(4%)	2(3%)	3(5%)
Post Traumatic Stress	14(10%)	5(6%)	9(16%)*
Generalized Anxiety	10(7%)	6(8%)	4(7%)
Any Anxiety Disorder	39(29%)	24(30%)	15(26%)
Legal			
History of Traffic Violations	5(4%)	1(1%)	4(7%)*
History of Assault	39(28%)	19(24%)	20(35%)
History of Burglary	19(14%)	9(11%)	10(18%)
Ever on Parole or Probation	113(83%)	64(81%)	49(86%)
Ever Jailed or Incarcerated	87(64%)	48(61%)	39(68%)
Number of Arrests (M, SD)	2.68,2.67	2.48,2.04	2.95,3.36
Suicide Attempt History	33(24%)	15(19%)	18(32%)*

*p<.05 **p<.01 ***p<.001

ACKNOWLEDGEMENTS:

This study was supported in part by a grant award (K01 AA015137) from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and a grant award (#13591) from the John Templeton Foundation to Dr. Pagano. The authors thank New Directions, an adolescent residential treatment facility in Ohio, for their assistance in the data collection. Analysis and poster preparation were supported by the Department of Psychiatry, Division of Child Psychiatry, Case Western Reserve University, Cleveland, OH. The authors and presenters report no other financial support or affiliations to disclose.

