



Adolescent health brief

Adolescents' Use of Medical Marijuana: A Secondary Analysis of Monitoring the Future Data

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A B S T R A C T

Purpose: To examine adolescents' annual use of medical marijuana and determine if legal medical marijuana users are at lower risk for frequent marijuana use and other substance use when compared to adolescents who use diverted medical marijuana or from an illicit source.

Methods: Public access Monitoring the Future data were used for this secondary analysis. The total weighted sample size was 4394 12th graders.

Results: Users of medical marijuana and diverted medical marijuana had notable odds of using daily, using prescription drugs, and using illicit drugs among other substance use behaviors. Medical marijuana users had much higher odds of using medical marijuana because of being "hooked" when compared to diverted medical users and illicit users.

Conclusion: This study is the first to provide nationally representative data on three groups of adolescent marijuana users. Although most adolescents use illicit sources, more adolescents appear to be using diverted medical marijuana, than using medical marijuana legally.

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IMPLICATIONS AND
CONTRIBUTION

Our data indicate that those adolescents using diverted medical marijuana have higher odds of engaging in both marijuana and other types of substance use. This study also shows that relatively few adolescents have medical papers to legally use medical marijuana, that relatively few adolescents are obtaining their marijuana from "medical" sources, and that most adolescents continue to get their marijuana from illicit sources.

In 1970, cannabis (marijuana) was placed in Schedule 1 of the Controlled Substances Act by the United States Congress. At that time, marijuana was viewed as having "no accepted" medicinal use and thus, possession, cultivation, or selling of marijuana was criminalized. However, since 1970, 23 states and the District of

Columbia have legalized the use of medical marijuana. California, with the enactment of Proposition 215 in 1996, was the first state to make medical marijuana available for patients, allowing each patient to have 8 oz. of usable marijuana, six mature plants, and 12 immature plants. Over the next 18 years, other states joined California although the amount and conditions for which marijuana can be medically recommended vary by state and include a broad range of conditions such as nausea, vomiting, cachexia, epilepsy, generalized pain, glaucoma, and multiple sclerosis. And, although Americans generally support medical marijuana laws (MML), one concern raised by opponents of MML is that "medicalizing" marijuana would lead to an increase in adolescents' use of it.

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The National Survey of Drug Use and Health (NSDUH) estimates that 76 percent of adolescents get their marijuana from a friend or family member [1], but whether the source originates with a medical marijuana patient or dispensary is undetermined. Indeed, the data on adolescents' medical marijuana use are mixed, although the best designed studies have found no increase in adolescent's use after MML were enacted in their state. Wall et al. [2] in their analysis of the 2002–2008 NSDUH data found states with MML had higher than average adolescents marijuana use. However, when Harper et al. [3] used a difference-on-difference study design with the same data used by Wall et al., they found that there was no significant increase in adolescents' marijuana use after enactment of MML. Data from the Youth Risk Behavior Survey during approximately the same period [4,5] found no measurable effect on adolescent marijuana use. In a study of youth in substance abuse treatment ($n = 164$), Salomonsen-Sautel et al. [6] found that 74% of their sample used medical marijuana a median of 50 times; however, they were using someone else's medical marijuana.

To date, the studies on adolescents' medical marijuana use have often been with state-specific, regional or clinical populations [3–8] and thus, this study represents the first to report on a nationally representative sample of 12th graders' medical marijuana use, whether used legally or illegally and its relationship to other drug use using data from the 2012 and 2013 *Monitoring the Future* study (MTF) [9].

Methods

In 2012 and 2013 MTF, questions were asked about medical marijuana on Form 1 with 12th graders, and these data were used for this study [10]. The total weighted sample size was 4,579

12th graders (2012: $n = 2,367$; 2013: $n = 2,212$). After respondents with missing data on past year marijuana use were excluded, the final weighted sample was 4,394 12th graders.

For the purposes of this study, the following four groups were created: (1) nonusers; (2) illicit users; (3) medical users; and (4) diverted medical marijuana users. Binary variables were created from three questions in the MTF survey: "On how many occasions have you used marijuana during the last 12 months," "Where did you get the marijuana you used during the last year? (Response: "From my own 'medical marijuana' prescription"), and "Did you get any of the marijuana you used during the last year from someone else's medical marijuana prescription?" Respondents who used medical marijuana from both their own prescription and someone else's were included in the group of respondents who used from their own medical marijuana source. We note that the term "medical marijuana prescription" is technically not the correct terminology because marijuana remains in Schedule 1 and technically, cannot be prescribed. However, the public uses the term "marijuana prescription," and this is the language used in MTF.

Results

We examined sample demographic characteristics and used binary logistic regression to compute adjusted odds ratios to determine risk of repeatedly using marijuana and using other types of substances among Groups 2–4.

Approximately, 1.1% of 12th graders indicated using medical marijuana from their own prescription during the past 12 months (Notably, 35% [$n = 17$] of these users also used from someone else's prescription). Six percent (6.1%) of the 12 graders indicated using medical marijuana from someone else's medical marijuana prescription during the past 12 months (see Table 1).

Table 1
Sample characteristics by different types of marijuana users ($n = 4,418$; unweighted/ $n = 4,394$; weighted)

Demographics (%) ^a	Group 1 Nonusers No past-year marijuana use ($n = 2,817$; 64.1%), ^a %	Group 2 Illicit users Past-year marijuana use that was not from a legal or medical source ($n = 1,263$; 28.8%), ^a %	Group 3 Medical users Past-year marijuana use from their own prescription ($n = 48$; 1.1%), ^a %	Group 4 Diverted medical marijuana users Past-year marijuana use from someone else's prescription ($n = 266$; 6.1%), ^a %	χ^2 ^b
Sex					<.001
Male (45.3)	43.1	49.2	66.7	57.7	
Female (46.8)	52.2	42.7	12.5	31.1	
Missing response (7.9)	4.7	8.1	20.8	11.2	
Race					<.001
White (56.5)	58.4	59.6	34.0	49.6	
Black (10.1)	11.4	8.3	10.6	3.8	
Hispanic (13.8)	14.1	12.3	21.3	20.3	
Other race/missing ^c (19.6)	16.1	19.8	34.0	26.3	
Urbanicity					<.001
Large MSA/urban (31.2)	29.5	31.4	18.8	47.4	
Other MSA/suburban (48.7)	48.3	49.6	66.7	44.7	
Non-MSA/rural (20.1)	22.2	19.0	14.6	7.9	
U.S. region					<.001
North East (17.0)	16.5	21.1	8.5	5.2	
North central (25.0)	26.6	24.4	12.8	16.5	
South (33.9)	35.5	33.5	19.1	13.9	
West (24.1)	21.4	21.1	59.6	64.4	

Because of missing responses on past-year marijuana use questions, 170 respondents (unweighted)/185 respondents (weighted) were removed from the analysis. MSA = Metropolitan Statistical Area.

^a Weighted estimates are provided.

^b χ^2 test of the overall association between different types of marijuana users and each demographic.

^c The public use MTF data censors respondents race to only identify white, black, and Hispanic respondents. Respondents racial identities who are "Other Race" are censored due to issues of confidentiality.

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