Rhode Island Public Health Brief

Marijuana

Rhode Island Public Health Association

Marijuana use in Rhode Island and around the United States: Rhode Islanders age 12 and older are the highest marijuana using population nationally. The Washington Post describes, " tiny Rhode Island [as] the marijuana capital of the United States," with 13% of its residents over the age of 12 using marijuana in the past month; ranking the state at 1 out of 50. [i] Additionally, in 2013 24% of high school students in RI have used marijuana one or more times in the previous 30 days,[ii] which is above the national mean of 23%.[iii]

Legal Marijuana use in Rhode Island: Recreational use of marijuana is not legal in Rhode Island at this time. However, the state of Rhode Island permits the medical use and cultivation of marijuana for qualifying medical conditions. This includes adequate regulation to ensure the use and cultivation is strictly for medical use of those with debilitating medical conditions.[iv] While many requirements are in place to limit marijuana use to only medical necessities, concern has been raised that marijuana has or will become more commonly available to RI residents, especially youth and young adults, which may have serious negative consequences associated with marijuana use.

Alcohol vs. Marijuana: Alcohol is somewhat more familiar to most Americans, though differences in its effects health compared with marijuana may not be appreciated. With regard to mood, memory and performance, alcohol and marijuana both produce dose-dependent cognitive and behavioral changes. Identical ratings for perceived impairment were reported for the high doses of alcohol and marijuana.v Also, both drugs produce comparable impairment in many brain function tests, though alcohol has a greater effect in some areas. Toxicity risk is much higher for alcohol (estimated human intake compared to toxic level) compared with marijuana.[vi] Though many interpret these findings with claims that marijuana is safe, a better frame of reference might be that risks of alcohol are underestimated.

Table 1. Adverse Effect of Short-Term Use and Long-Term or Heavy Use of Marijuana.

Effects of Short-Term Use

- Impaired short-term memory, making it difficult and to retain information
- Impaired motor coordination, interfering with driving skills and increasing risk of injuries.
- Altered judgement, increasing the risk of sexual behaviors that facilitate the transmission of sexually transmitted diseases.
- In high doses, paranoia and psychosis

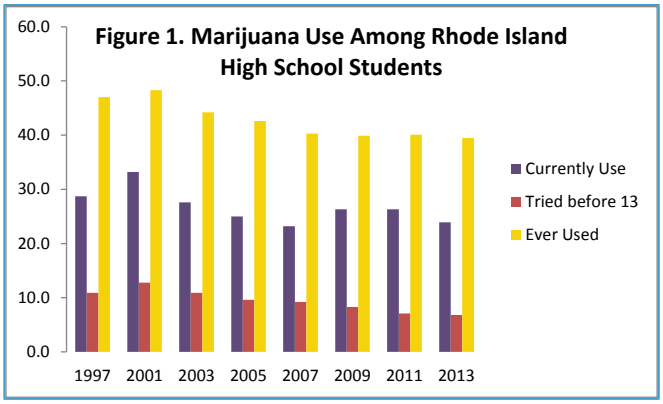
Effects of Long-Term or Heavy Use

- Addiction (in about 9% of users overall, 17% of those who begin use in adolescence, and 25 to 50% of those who are daily users.)
- Altered brain development.
- Poor educational outcome, with increased likelihood of dropping out of school.
- Cognitive impairment, with lower IQ among those who were frequent users during adolescence.
- Diminished life satisfaction and achievement
- Symptoms of chronic bronchitis
- Increased risk of psychotic disorders (including schizophrenia) in persons with a predisposition to such disorders.

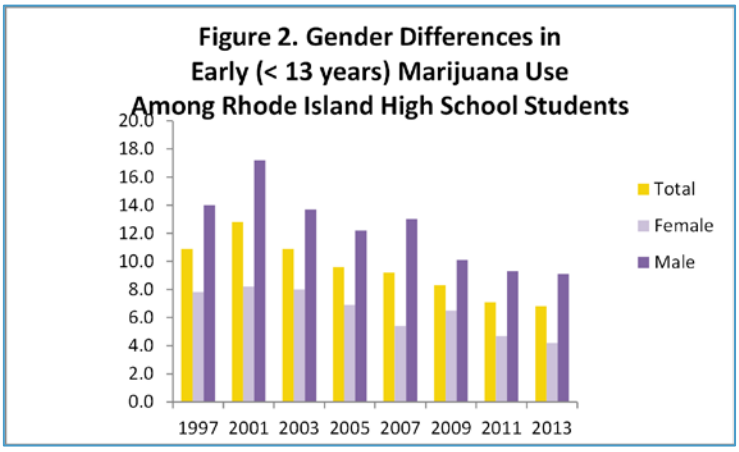
(Volkow ND, et al. 2014)

Health Effects of Marijuana: Health risks of marijuana use include both short term and long term negative consequences (Table 1). Short-term harm includes impaired memory, impaired motor skills and coordination, and impaired judgement. Long term harmful effects include altered brain development causing cognitive impairment, symptoms of chronic bronchitis. Additionally, the use of marijuana potentially prepares the brain to respond in a more addictive manner to the use of other drugs following a previous exposure to marijuana.[vii] In fact, higher marijuana use and increased potency of the active ingredient Tetrahydrocannabinol (THC) could be responsible for the observed increase in visits to the Emergency Room. Schizophrenia, paranoia, anxiety and depression increased among marijuana users, but mainly among those with a predisposition for those conditions. Marijuana may potentially alleviate symptoms of several conditions including lessening the negative effects of: chronic pain, glaucoma, epilepsy, nausea, and Multiple Sclerosis; [vii;] although evidence from clinical trials is currently lacking.

Driving after Marijuana Use: Marijuana use is associated with increased risk of motor vehicle accident[viii] and accident risk increases with the dose and regularity of marijuana use.[viii] Dose-dependent risk is problematic due to the increasing potency of recreationally-available marijuana[ix] [x] and the elevating prevalence of marijuana-involved driving.[xi] Individuals who drive after marijuana use exhibit impaired psychomotor function and reduced reaction to road obstacles.[xii] [xiii]



Marijuana Use among Adolescents: Marijuana use among adolescents has declined slightly in recent years (See Figure 1). However current use has been steadily reported by about 25% of RI High School students as mentioned. Although use before the age of 13 years has declined with overall use, boys are twice as likely as girls to experiment with marijuana at this young age (Figure 2), and this gender difference has been consistent over the past decade.



An indicator of marijuana use, the perceived risk, is declining among U.S. 12th graders. Percentage of high school seniors reporting perceived risk of harm from occasional use of marijuana has declined from 25% in 2010 to 16% in 2014.[xiv] These findings are particularly relevant as prior surveys have found increases in rates of marijuana use correspond to declines in perceived risk from use.[xv] Most high school seniors who use marijuana infrequently report that they would not use the drug again if use were legalized. However, frequent marijuana users are more likely to report that they would use the drug as often or more often if use were legal.[xvi]

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[i] The Washington Post. Where Americans Smoke Marijuana the Most. August, 5 2015. Retrieved May 1, 2015.
[ii] Centers for Disease Control. Youth Risk Behavior Survey: Rhode Island 2013
[iii] Centers for Disease Control. Table 61. Use of selected substances in the last 30 days among high school seniors, 10th graders, and 8th graders by age and race: United States selected years 1980-201. http://www.cdc.gov/nchs/data/hus/2013/061.pdf. Accessed May 4, 2015.
[iv] Rhode Island Department of Health. http://webserver.rilin.state.ri.us/Statutes/TITLE21/21-28.6/21-28.6-2.HTM. Accessed May 4, 2015.
[v] Heishman SJ[1], Arasteh K, Stitzer ML. Comparative effects of alcohol and marijuana on mood, memory, and performance. Pharmacol Biochem Behav. 1997 Sep;58(1):93-101.
[vi] Lachenmeier, DW, Rhem J. Comparative risk assessment of alcohol, tobacco, cannabis and other illicit drugs using the margin of exposure approach Sci Rep. 2015; 5: 8126.
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[viii] Li, M. C., Brady, J. E., DiMaggio, C. J., et al. (2012). Marijuana use and motor vehicle crashes. Epidemiologic Reviews, 34(1), 65–72.
[ix] Mehmedic, Z., Chandra, S., Slade, D., Denham, H., Foster, S., Patel, A. S., … ElSohly, M. A. (2010). Potency trends of Δ9-THC and other cannabinoids in confiscated cannabis preparations from 1993 to 2008.*Journal of Forensic Sciences*, *55*(5), 1209–1217.
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[xiii] Ramaekers, J. G., Berghaus, G., van Laar, M., & Drummer, O. H. (2004). Dose related risk of motor vehicle crashes after cannabis use. *Drug and Alcohol Dependence*, *73*(2), 109–119.
[xiv] Center for Substance Abuse Research, University of Maryland at College Park (CESAR FAX), Volume 24, Issue 1
[xv] Center for Substance Abuse Research, University of Maryland at College Park (CESAR FAX), Volume 22, Issue 2
[xvi] Center for Substance Abuse Research, University of Maryland at College Park (CESAR FAX), Volume 23, Issue 1