FALL 2015

ISSUES OF REGIONAL TEEN MARIJUANA USE

REGION 1, TEXAS

PREVENTION RESOURCE CENTER, REGION 1 TEXAS
MANAGED CARE CENTER FOR ADDICTIVE/OTHER DISORDERS, INC
1715 26th St | Lubbock, TX 79411 | 806.780.8300

THE PRC, REGION 1

WHO WE ARE

The Prevention Resource Center (PRC) is a service of Managed Care Center for Addictive/Other Disorders, Inc. We serve the 41 counties of the Texas Panhandle and South Plains Region.

We serve as the central data collection repository and substance abuse prevention training liaison for Public Health Region 1, funded by a grant from the Department of State Health Services.

Our duties are to identify local community, county, and regional data resources that will provide and share data to enhance and maximize data collection and support the central data collection repository efforts.

OUR MISSION

The purpose of the Prevention Resource Center is to support activities that enhance and improve substance abuse prevention services across Region 1 of the State of Texas. The Resource Center serves as a central repository for data collected throughout Region 1 that will be used to develop a Regional Needs Assessment.

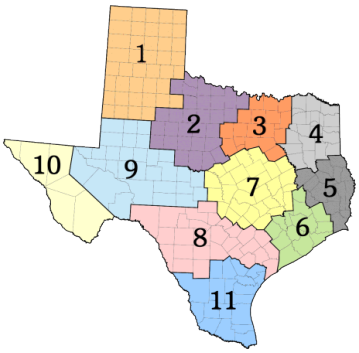
Our specific goals are:

- To provide current, relevant, and community-wide data on substance abuse trends
- To enhance the ability of our communities to more effectively respond to changes in substance abuse trends
- To influence data driven changes in the standards and attitudes within our communities

OUR REGION

We serve the following counties in West Texas:

- Armstrong, Bailey, Briscoe, Carson, Castro, Childress, Cochran, Collingsworth, Crosby, Dallam, Deaf Smith, Dickens, Donley, Floyd, Garza, Gray, Hale, Hall, Hansford, Hartley, Hemphill, Hockley, Hutchinson, King, Lamb, Lipscomb, Lubbock, Lynn, Moore, Motley, Ochiltree, Oldham, Parmer, Potter, Randall, Roberts, Sherman, Swisher, Terry, Wheeler, & Yoakum.



HOW WE SERVE OUR COMMUNITY

We serve our communities by providing alcohol, tobacco, and other drug (ATOD) data to schools, colleges and universities, or other community agencies. This is done through **Information Dissemination**

which provides awareness and knowledge of alcohol, tobacco and other drug abuse, and issues and trends through the data collected by the central data repository.

Our **Community-Based Process** aids the community to more effectively provide "TIPS" (Treatment, Intervention and Prevention Services) for ATOD problems through community mobilization, collaboration, coalition building, networking and community empowerment efforts.

Through **Environmental and Social Policy,** we aim to reduce the incidence and prevalence of ATOD in the general population by establishing and/or changing written and unwritten standards, codes and attitudes within the community. This strategy also aims to combat substance abuse and related harms with concerted, community-based and comprehensive efforts to change norms, behaviors, systems and context that contribute to substance abuse problems in our communities.

TOBACCO STRATEGIES

Our Tobacco Specialist works with tobacco retailers to understand and comply with Texas laws concerning the sale and display of tobacco products. The Prevention Resource Center provides education to tobacco retailers and the media concerning tobacco laws and the harmful effects of tobacco.

COMMUNITY COOPERATION

The Prevention Resource Center collaborates with other agencies by sharing data about substance abuse issues, trends, planning, training and other activities within our region and state. The Prevention Center coordinates with regional coalitions and supports their prevention efforts.

Jackie J. Johnson, CPS

Program Director

15 December 2015

Prevention Resource Center, Region 1

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INTRODUCTION

Marijuana is the most widely used illicit drug in the world and the use of marijuana in the United States is increasing. In 2014, more than 22 million Americans (8.4%) age 12 or older reported using marijuana within the past 30 days—a significant increase over rates reported each year from 2002-2013, according to the National Institute on Drug Abuse[1]. Other research suggests a decrease in perceived risk of marijuana use in young adolescents corresponds with increased risk of marijuana use.

Other information indicates that this problem is even more pervasive among teens. Recently, almost half of US teens (44%) report using marijuana at least once within their lifetime; more than one in three (36%) report using in the past year; one in four (24%) report using within the past month; and 7% report using at least 20 times within the past month[2].

More than four in ten teens (41%) who have used marijuana started doing so before the age of 15[3]. This is worrisome considering that those who initiate marijuana use at a younger age are more likely to use marijuana – as well as other substances – more frequently than those who begin using at an older age.

Recently, almost half of US teens (44%) report using marijuana at least once in their lifetime.

Of course, marijuana use is associated with other forms of drug abuse. While some research questions if the link between marijuana and other drug abuse is causal, other studies find that marijuana use typically precedes the use of potentially more dangerous drugs, such as cocaine and heroin. A recent study published in the Journal of Adolescent Health found that men and women who had used marijuana were 2.5 times more likely to later misuse prescription drugs compared to those who abstained[4].

Still, marijuana continues to be the most used illicit substance in Region 1. These are regional surveys that the PRC has access to: The 2014 Texas Prevention Impact Index (TPII), the 2015 40 Developmental Assets Survey (40 DAS), and the 2013 Lubbock VOICES Survey. The results of these surveys, along with the results from two state-wide surveys, provides the best picture into just how regional adolescents abuse marijuana.

Specifically, this report primarily uses data for region 1 from these five surveys:

- TSS: 2014 Texas Student Survey, Region 1-2
- YRBS: 2013 Youth Risk Behavior Survey, Texas
- TPII: 2014 Texas Prevention Impact Index, Amarillo ISD
- VOICES: 2013 VOICES, Lubbock Survey
- 40 DAS: 2015 40 Developmental Assets Survey, Lubbock YWCA

[1] Center for Behavioral Health Statistics and Quality (2015).
[2] 2013 Partnership Attitude Tracking Study, sponsored by Met Life. Key Finds: Released July 23, 2014.
[3] Ibid.
[4] Fiellin L, Tetrault J, Becker W, Fiellin D, Hoff R. Previous use of alcohol, cigarettes, and marijuana and subsequent abuse of prescription opioids in young adults. Journal of Adolescent Health, August 2012.

Taken together, these surveys begin to illustrate how adolescents in Region 1, Texas perceive harmful risks of using marijuana and how they consume marijuana.

Health Effects of Marijuana Use

When talking with regional teens, we often hear something similar to, "Nobody ever died from smoking marijuana" or "Marijuana is safer than alcohol" or something similar. In fact, we often encounter people who are surprised to learn that marijuana is illegal—including many adults. In reality, marijuana consumption has many health effects and can even lead to death.

Table 1: Adverse Effects of Short-term Use and Long-term or Heavy Use of Marijuana[5]

Adverse Effects of Short-term Use and Long-term or Heavy Use of Marijuana	
Effects of Short-term Use	Effects of Long-term or Heavy use
• Impaired short-term memory, making it difficult to learn and retain information • Impaired motor coordination, interfering with driving skills and increasing the risk of injuries • Altered judgement, increasing the risk of sexual behaviors that facilitate the transmission of STD • Paranoia and Psychosis	• Addiction • Altered brain development • Poor educational outcome • Cognitive impairment with lower IQ among frequent users in adolescence • Diminished life satisfaction and achievement • Increased risk of chronic psychosis disorders, including schizophrenia

Overall, about 9% of people who use marijuana become addicted. Of those who begin smoking marijuana in adolescence, 17% become addicted and 25%-50% of those who smoke marijuana daily will become addicted.[6]

Acute Effects

The estimated fatal dose of THC for humans is 15 g to 70 g[7] which is much higher than what is normally smoked by a heavy marijuana smoker. Although rare, deaths due directly to cannabis toxicity have occurred. For instance, in 2015, a 31 year old woman died in Britain of cannabis toxicity[8] and in 2004 a 36 year old man died of cannabis toxicity after smoking six cannabis cigarettes a day for eleven years.[9]

[5] Volkow, 2014
[6] Ibid.
[7] Gable, 2004
[8] http://www.telegraph.co.uk/news/uknews/law-and-order/10606932/Mother-thought-to-be-first-woman-in-Britain-to-die-from-cannabis-poisoning.html (Accessed December 2, 2015)
[9] http://www.smh.com.au/articles/2004/01/20/1074360755990.html (Accessed December 3, 2015)

More commonly, acute adverse effects of smoking marijuana are anxiety, panic reactions, and psychotic symptoms.[10] Impairment behaviors that directly effect a person's ability to operate a motor vehicle include slowed reaction time, information processing, perception-motor coordination, motor performance, attention, and tracking behavior.[11] In fact, driving after consuming cannabis increases the risk of motor vehicle crashes 200-300%.[12]

Many studies have explored the link between cannabis and psychosis. In a systematic review, Moore and colleagues[13] looked at population-based longitudinal studies as well as nested case-control studies that assessed the impact of cannabis use on the later development of psychosis. The "psychosis" outcomes required the diagnosis of a primary psychotic disorder or affective psychosis, or the occurrence of delusions, hallucinations, or thought disorder during the study period. Results from 7 cohort studies showed a 40% increased risk of psychosis in cannabis users compared with nonusers. The data also revealed a dose-response effect—the risk of psychotic symptoms was increased approximately 50% to 200% in those who used cannabis frequently compared with nonusers.

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Table 2: What is Psychosis? [14]

What is Psychosis?

Psychosis describes conditions that affect the mind. There is a loss of contact with reality and many of the following symptoms may occur:

Positive symptoms (which reflect a change or increase in regular functioning):

- Delusions
- Hallucinations
- Feelings of paranoia and suspiciousness
- Disorganized thinking
- Disorganized speaking

Negative symptoms (which reflect a decrease or loss "normal" functions):

- Loss of or decreased motivation
- Loss of or decreased in ability to take initiate or come up with new ideas
- Loss of or decreased talking
- Difficulties expressing emotion
- Difficulties thinking and/concentrating

Some other problems that may occur concurrently with psychosis are:

- Depression
- Anxiety
- Substance abuse
- Difficulties sleeping

[10] Hall and Pacula, 2003
[11] Ramaekers et.al., 2004
[12] Ibid.
[13] Moore et.al., 2007
[14] Source: http://cannabisandpsychosis.ca/more-information/what-do-we-know/psychosis/what-is-psychosis/

Chronic Effects

Chronic cannabis use is usually understood as daily or almost daily use over a period of years. Many studies report association between chronic cannabis use during adolescence and various adverse health outcomes. However, the major challenge in studies like these is to rule out alternative explanations of associations since cannabis consumption is highly correlated with alcohol, tobacco, and other illicit drugs all of which also adversely affect health.[15]

Regular cannabis users also report more symptoms of chronic bronchitis than do non-smokers.[16] Wheezing, sputum production, and chronic coughs are all common for marijuana smokers. In addition, marijuana smokers suffer from an increased risk of respiratory infection due to a weakened immune system.[17]

Also, cannabis use adversely effects the cardiovascular system. Cannabis and THC both increase heart rate depending on the size of dose taken—especially in adults who have cardiovascular disease.[18] One study found that using marijuana can increase the risk of myocardial infarction 4-8 times in an hour after use and increased mortality rates over 3-8 years.[19] This risk increased 2-5 times for those who used marijuana less than once a week and 4-10 times in those who used cannabis more than once a week.

Cognitive Effects

The human brain remains in a state of active, experience-guided development from prenatal through childhood and adolescence until the age of approximately 21 years.[20]During these developmental periods, the brain is intrinsically more vulnerable than a mature brain to the adverse long-term effects of cannabis. Prenatal or adolescent exposure to THC can recalibrate the sensitivity of the reward system to other drugs[21] and prenatal exposure interferes with the process where axons connect between neurons.[22]

The negative effect of marijuana use on the functional connectivity of the brain is particularly prominent if use begins in adolescence or young adulthood, which may explain the association between frequent marijuana use from adolescence into adulthood and the significant declines in IQ.

As compared to unexposed controls, adults who smoked marijuana regularly during adolescence have impaired neural connections in specific brain regions. These include the regions involved in alertness and self-conscious awareness as well as learning and memory.[23] In addition, imaging studies in people who use marijuana reveal decreased activity in prefrontal regions and reduced volumes in the hippocampus.[24] In other words, certain brain regions—including those responsible for

[15] Hall and Pacula, 2003
[16] Tetrault et.al., 2007
[17] Tashin et.al., 2002
[18] Jones, 2002
[19] Mittleman et.al., 2001
[20] Gotay et.al., 2004.
[21] Dinieri and Hurd, 2012
[22] Tortoriello et.al., 2014
[23] Zalesky et.al., 2012
[24] Batalla et.al., 2013

decision-making and memory—are more vulnerable than others to the long-term effects of marijuana consumption.

The negative effect of marijuana use on the functional connectivity of the brain is particularly prominent if use begins in adolescence or young adulthood[25], which may explain the association between frequent marijuana use from adolescence into adulthood and the significant declines in IQ.[26] These impairments in brain connectivity associated with marijuana exposure in adolescence are consistent with the preclinical findings indicating that the cannabinoid system plays a prominent role in synapse formation during brain development.[27]

Psychosocial Effects

In Region 1, 21.1% of twelfth grade students report using marijuana during the current school year and 14.7% report using it in the past month.[28] This is most likely an underestimate of use as young people who dropped out of school have particularly high rates of frequent marijuana use.[29] Since marijuana use impairs critical cognitive functions, both during acute intoxication and for days after use, many students are functioning at a cognitive level below their natural capability for considerable periods of time.

Since marijuana use impairs critical cognitive functions, both during acute intoxication and for days after use, many students are functioning at a cognitive level below their natural capability for considerable periods of time.

Failure to learn at school, even for short or sporadic periods of time (a secondary effect of acute intoxication), will interfere with the subsequent capacity to achieve increasingly challenging education goals. This may explain the relationship between regular marijuana use and poor grades.[30]

The relationship between marijuana consumption and psychosocial harm is complex and contingent on other social factors. For instance, heavy marijuana use is linked to lower income, greater need for socioeconomic assistance, unemployment, criminal behavior, lower satisfaction with life, and other illicit substance consumption.[31] Still, evidence clearly suggests that marijuana consumption at least in part adversely effects cognitive development and hampers the potential for adolescents to succeed in school and society.

Regional Adolescent Perceptions of Marijuana

How teens perceive marijuana is vital to understanding how teens consume marijuana in our region. These perceptions directly correlate to how marijuana is treated by teens and what strategies

[25] Zalesky et.al., 2012.
[26] Meier et.al., 2012
[27] Gaffuri et.al., 2012
[28] Texas Student Survey of Drug and Alcohol Use Region 1-2, 2014
[29] Bray et.al., 2000
[30] Lynskey and Hall, 2000
[31] Volkow et.al., 2014

Prevention Specialists can employ in order to educate adolescents about the dangers of marijuana consumption.

Perception of Access

Adolescents can only use ATOD substances if they have access to these substances. The Texas Student Survey asks 7th to 12th grade students in our region to rate how easily they can find these products. In general, the less able adolescents can find these substances, the less likely they are to consume these substances. Overall, Region 1 High School students perceive alcohol to be the easiest to get with 46.3% reporting that access to alcohol is either somewhat or very easy for them.

Still, many Texas adolescents believe that accessing marijuana is relatively easy. Overall, there is little data on how accessible marijuana is to adolescents in Region 1. However, the 2015 TP11[32] reports that 30.7% of participating Amarillo area students indicate that marijuana is either very easy or fairly easy to get. This is higher than the average for our region as reported by the 2014 Texas Student Survey (29.7%).

Table 3: Perceived Accessibility to Marijuana, TSS 2014[33]

If you wanted to, how difficult would it be for you to get marijuana?						
	Never Heard of It	Impossible	Very Difficult	Somewhat Difficult	Somewhat Easy	Very Easy
All Grades	29.1%	24.6%	7.5%	9.1%	11.9%	17.8%
Grade 7	47.1%	27.9%	8.5%	6.8%	4.4%	5.3%
Grade 8	21.6%	34.5%	11.4%	11.3%	8.7%	12.6%
Grade 9	22.1%	23.3%	7.1%	11.0%	14.3%	22.3%
Grade 10	19.0%	16.7%	7.1%	14.7%	16.7%	25.8%
Grade 11	13.7%	21.0%	4.8%	12.0%	20.5%	28.0%
Grade 12	14.5%	13.6%	9.1%	8.5%	20.4%	33.9%

Perhaps of greatest concern regarding access is that 54.3% of regional twelfth grade students report that marijuana is either somewhat easy or very easy to obtain. Still, almost one tenth (10.2%) of Texas seventh grade students report that marijuana is either somewhat easy or very easy to obtain.

Amarillo-area adolescents report a slightly higher perception of access to marijuana. In 2015, 30.7% of these teens reported that marijuana is either very or fairly easy to obtain[34]. It may be that adolescents are more likely to access marijuana when compared to the regional average.

[32] Texas Prevention Impact Index, 2015
[33] Source: Texas Student Survey of Drug and Alcohol Use, 2014
[34] 2015 Texas Prevention Impact Index

Perceived Risk of Harm

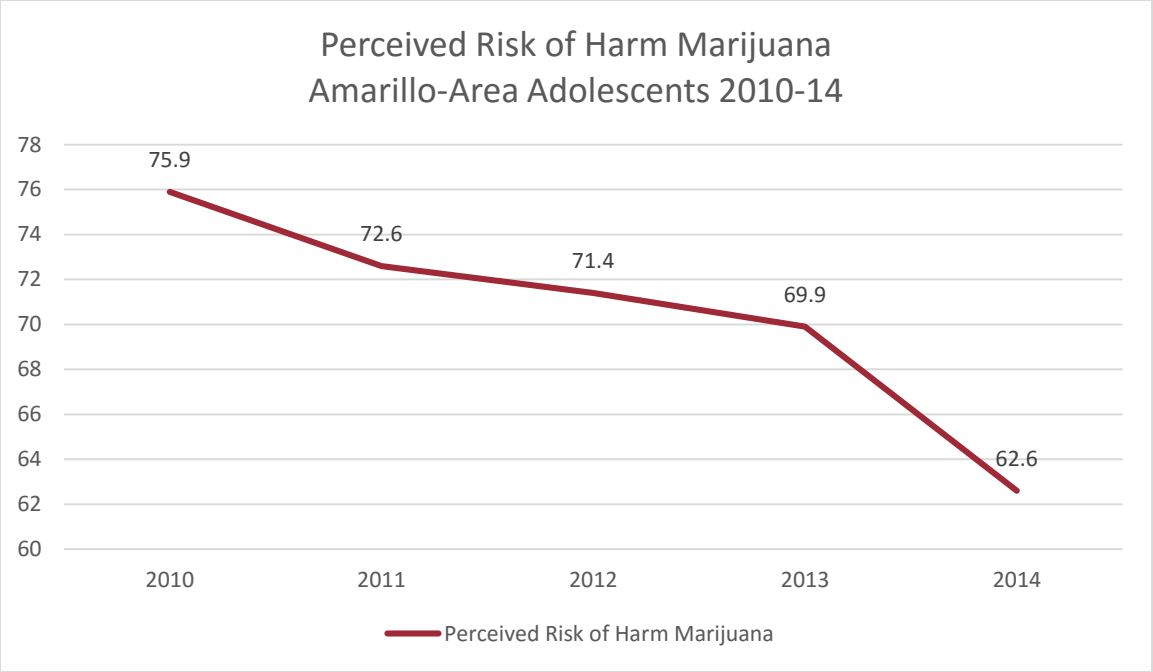
Convincing adolescents that ATOD substances are harmful to them is what Youth Prevention efforts are all about. Overall, regional students report that they believe marijuana to be very dangerous (65.4%) followed closely by tobacco (58.9%)[35].

Regionally, adolescents do perceive ATOD substances as having a higher risk of harm than Texas teens. Over 92% of Amarillo-area adolescents perceive cigarettes as harmful and 62.6% of these same students perceive marijuana as harmful.

Regional educators and other prevention advocates do have reason for concern. Although the regional data does demonstrate that area teens do perceive marijuana as dangerous, these students do perceive marijuana as less dangerous than cigarettes, binge drinking, and prescription drugs.

Also, fewer Amarillo-area students perceive marijuana as dangerous each year. Over the last five years, the perception of marijuana as dangerous has steadily fallen each year. In 2010, 75.9% of participants perceived marijuana as dangerous while, in 2014, only 62.6% felt this way. That is a 15.3% drop over five years.

Figure 1: Four Years Perceived Risk of Harm for Marijuana, TPII 2015[36]



Depending on how one looks at the data, regional adolescents may or may not consider marijuana as dangerous as compared to Amarillo-area and Lubbock-area adolescents. Regionally, the TSS reports that 65.4% of adolescents perceive marijuana as very dangerous and 10.6% also answered that marijuana is "somewhat dangerous". Taken together, one could say that 76.0% of regional adolescents feel that marijuana is either somewhat or very dangerous while only 62.6% of Amarillo-area adolescents and only

[35] 2014 Texas Student Survey of Drug and Alcohol Abuse
[36] Source: Texas Prevention Impact Index, 2015

56% of Lubbock-area teens perceive marijuana as dangerous .It could be argued that regional rural adolescents perceive marijuana as more dangerous than regional urban teens.

Table 4: Perceived Risk of Harm to Marijuana Use, TSS 2014[37]

How dangerous do you think it is for kids your age to use marijuana?					
	Very Dangerous	Somewhat Dangerous	Not Very Dangerous	Not at All Dangerous	Do Not Know
All Grades	65.4%	10.6%	8.0%	10.5%	5.6%
Grade 7	72.9%	8.0%	4.4%	5.8%	8.9%
Grade 8	71.6%	11.0%	6.1%	8.2%	3.1%
Grade 9	67.7%	13.1%	8.5%	9.0%	1.7%
Grade 10	55.1%	13.8%	12.2%	12.1%	6.8%
Grade 11	48.5%	12.6%	11.0%	21.7%	6.2%
Grade 12	48.6%	14.5%	14.2%	18.5%	4.2%

Regional Adolescent Consumption of Marijuana

The majority of regional marijuana consumption data that is available comes from the 2014 Texas Student Survey of Substance Abuse (TSS) and the 2013 Youth Risk Behavior Survey – Texas Results (YRBS). Both of these surveys give data for the State of Texas and is not available at a regional or county level of detail. These do afford communities a general idea of what may be occurring among their young people. This data provides an excellent frame from which to compare any local information concerning ATOD use.

Local data specific to Region 1 on marijuana consumption and abuse is sparse but there are three surveys that the PRC has access to: The Amarillo Texas Prevention Impact Index (TPII) 2015, the 2013 Lubbock VOICES Survey, and the 40 Developmental Assets Survey collected in Lubbock County 2014-15 by the YWCA. These surveys are centered in the Amarillo and Lubbock metropolitan areas but they should not be dismissed by rural areas within the region.

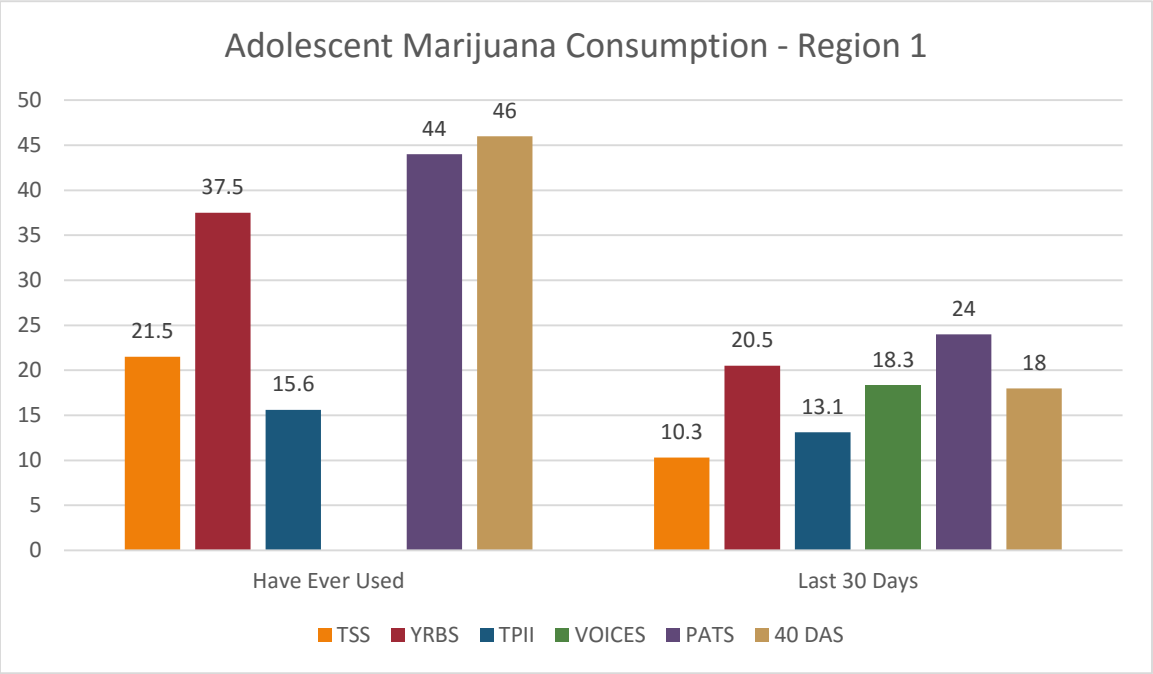
Still, a shocking 46% or Lubbock-area students report trying marijuana at least once. This is significantly higher than the regional average (21.5%).

Overview

Generally speaking, available data seems to indicate that fewer adolescents in Region 1 (21.5%) have ever used marijuana when compared to national (44%)[38] and state (26.2% or 37.5%) results. Equally encouraging, fewer regional adolescents (13.1%, 18%) report using marijuana in the last 30 days than national teens (24%)[39].

[37] Source: Texas Student Survey of Drug and Alcohol Use Region 1-2, 2014
[38] 2013 Partnership Attitude Tracking Study, sponsored by Met Life. Key Finds: Released July 23, 2014.
[39] Ibid.

Figure 2: Overview of Marijuana Consumption, Region 1



Still, it is troubling that 46% of Lubbock-area adolescents reported that they have tried marijuana at least once. Equally troubling is that 18% of Lubbock-area adolescents report that they have used marijuana within the last 30 days. Although this is slightly less than Texas Students surveyed by the YRBS, it is over 5% higher than the Texas Students surveyed by the TSS. Finally, 11.4% of Amarillo-area adolescents reported that they plan on using marijuana in the future but this is down from last year.

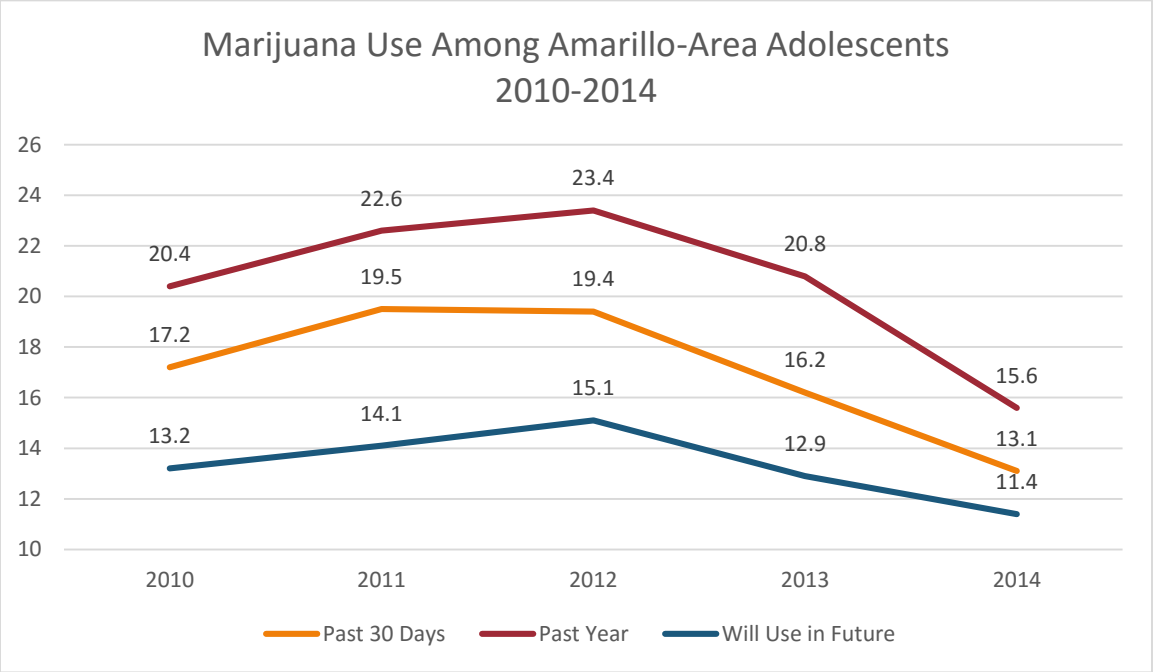
Current Use

Nationally, marijuana use among adolescents is basically flat over the last five years[40] and what regional information we have seems to defy this. In 2013, marijuana use among Amarillo-area adolescents are similar to 2010 rates but it continues to decline.

Overall, this is good news—especially when compared to how fewer Amarillo-area adolescents perceive marijuana as harmful over this same period. Still, almost 16% of Amarillo-area students report using marijuana in the last year. Unfortunately, we have no good data for Lubbock-area adolescents concerning past year use. However, Lubbock-area students (18%) report a higher past 30 days use than Amarillo-area students (13.1%).

Figure 3: Marijuana Use 2010-2014, TPII 2015[41]

[40] Ibid.
[41] Source: Texas Prevention Impact Index, 2015



As compared to Texas state averages, our region seems mixed. Area adolescents are less likely to have ever tried marijuana but more likely to have used marijuana in the last 30 days than participants of the Texas Student Survey. Still, a shocking 46% or Lubbock-area students report trying marijuana at least once. This is significantly higher than the regional average (21.5%).

State-wide, only 26.2% of adolescents report ever using marijuana but 41.8% of twelfth grade students report that they have used marijuana at least once. Overall, this is well below national findings.

Table 5: Prevalence and Recent Use of Marijuana, TSS 2014[42]

Prevalence and Recent Use of Marijuana – TSS 2014				
	Past Month	School Year	Ever Used	Never Used
All Grades	7.9%	11.5%	21.5%	78.5%
Grade 7	4.0%	5.5%	10.5%	89.6%
Grade 8	6.3%	9.5%	15.1%	84.8%
Grade 9	5.5%	10.5%	19.0%	81.1%
Grade 10	12.6%	17.3%	30.6%	69.3%
Grade 11	14.3%	19.1%	38.8%	61.2%
Grade 12	14.7%	21.1%	41.0%	58.9%

[42] Source: Texas Student Survey Regions 1-2, 2014

CONCLUSION

New national-level data concerning adolescent use of marijuana may indicate some troubling trends. Overall, Adolescent use of marijuana in our region is lower when compared to this information but mixed as compared to state-level data.

KEY FINDINGS

- Overall, regional adolescent marijuana consumption is down from last year.
- 46% of Lubbock-area students report trying marijuana at least once. This is much higher than the regional average.
- 18% of Lubbock-area adolescents report using marijuana in the past 30 days.
- Adolescent perception of risk of harm from marijuana continues to drop. Only 62.6% of Amarillo-area students report marijuana as dangerous. This is lower than regional teens (76%).
- Cannabis users have a 40% higher chance of psychosis than nonsmokers.

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