

Alcohol and Substance Use Among Adolescents in Washington State:

Results From The 1998-1999 Adolescent Household Survey

March 2002



U.S. DEPARTMENT HEALTH AND HUMAN SERVICES
Substance Abuse and Mental Health Services Administration
Center for Substance Abuse Treatment

*Washington State Department of Social and Health Services
Management Services Administration
Research and Data Analysis Division*

**Alcohol and Substance Use
Among Adolescents
in Washington State:
Results From The 1998-1999
Adolescent Household Survey**

March 2002

Elizabeth Kohlenberg, Ph.D.

Dan Nordlund, Ph.D.

Bruce Treichler, MA

Joe Kabel, Ph.D.

Aaron Lowin, Ph.D.

DSHS Research and Data Analysis Division

with

Marion K. Landry, M.A.

WSU Social and Economic Sciences Research Center

CSAT

Center for Substance
Abuse Treatment
SAMHSA

Produced under a contract funded by the Center for Substance Abuse Treatment,
Substance Abuse and Mental Health Services Administration,
U.S. Department of Health and Human Services
Center for Substance Abuse Treatment, 5600 Fishers Lane
Rockwall II, Suite 618, Rockville, Maryland 20857, 301.443.5052

Washington State Department of Social and Health Services
Management Services Administration
Research and Data Analysis Division
Olympia, Washington 98504-5204

When ordering this Report, please refer to:
Report Number 4.35

This study of adolescent drug and alcohol use in Washington State is funded by the Center for Substance Abuse Treatment, Substance Abuse and Mental Health Administration, United States Department of Health and Human Services under contract number 270-96-0016. This is a revised version of the report submitted to CSAT in March 2001.

Department of Social and Health Services

Dennis Braddock, Secretary

Management Services Administration

Kennith Harden, Assistant Secretary

Research and Data Analysis Division

Elizabeth Kohlenberg, Ph.D., Director

In conjunction with

Division of Alcohol and Substance Abuse

Kenneth D. Stark, Director

Antoinette Krupski, Ph.D., Research Administrator

Contents

Executive Summary	v
Chapter One: Overview of Adolescent Household Survey	Page 1
Project Goals.....	Page 1
Sampling Method and Design	Page 2
Household and Respondent Selection and Response Rates	Page 2
Sample Characteristics.....	Page 3
Analysis Methods	Page 4
Topics Covered.....	Page 5
Chapter Two: Comparison with National and Other State Studies	Page 7
Age Comparisons Across Surveys.....	Page 8
Lifetime Use Comparisons	Page 8
Past Thirty-Day Use Comparisons	Page 10
Discussion.....	Page 11
Chapter Three: Adolescent Household Survey Research Findings	Page 13
Lifetime Use	Page 14
Past Thirty-Day Use	Page 18
Heavy Use.....	Page 21
Age at First Use	Page 22
Insurance Coverage	Page 22
Chapter Four: Risk Factors and Adolescent Alcohol and Drug Use	-Page 23
Bivariate Relationships Between Risk Factors and Use/Abuse	Page 23
Effect of Multiple Risk Factors	Page 26
Chapter Five: Substance Abuse and Dependence and Need for Treatment	Page 29
Definition of Six Month Dependence.....	Page 29
Definition of Six Month Abuse	Page 30
Six Month Substance Abuse Disorder.....	Page 30
Six Month Need for Treatment.....	Page 33
Twelve Month Need for Treatment	Page 33
Chapter Six: Comparing Need and Use of Treatment, and County Estimates of Need	Page 35
County-Level Estimates of Need for Treatment.....	Page 35
Appendix One: Cooperation and Response Rate Analysis	Page 37
Appendix Two: Method To Estimate 12 Month Need for Treatment Rate	Page 39
Appendix Three: Household Survey for Adolescents	Page 41

EXECUTIVE SUMMARY

Between December 1998 and July 1999, 1,259 Washington State adolescents living in their parents' homes were interviewed by telephone about their drug and alcohol use and abuse, risk factors, and other topics. Respondents were twelve through seventeen years old when interviewed. Key findings on adolescent alcohol and drug use and problems are as follows:

Lifetime use of alcohol and other drugs

- Almost half (47%) used alcohol or other drugs at least once.
- About one in five (22 %) used marijuana at least once.
- One in six (16%) have used some illegal drug other than alcohol or marijuana. This category includes drugs such as cocaine or heroin.

	Ages 12 through 17	Age 17 only
Percent who used alcohol or other drugs	47%	72%
Percent who used marijuana	22%	49%
Percent who used drugs other than alcohol or marijuana	16%	29%

Past month use of alcohol & other drugs

- Almost one in four (23%) used alcohol or other drugs within the past thirty days.
- About one in ten (9%) used marijuana within the past thirty days.
- One in twenty-five (4%) have used some illegal drug other than alcohol or marijuana within the past thirty days. This includes drugs such as cocaine or heroin.

	Ages 12 through 17	Age 17 only
Percent who used alcohol or other drugs	23%	48%
Percent who used marijuana	9%	20%
Percent who used drugs other than alcohol or marijuana	4%	11%

Six Month Alcohol or Drug Use Disorder

The interview asked questions that generate psychiatric diagnoses of alcohol or other drug abuse or dependence. The diagnostic criteria come from the American Psychiatric Association's Diagnostic and Statistical Manual, Version III-Revised (DSM-III-R).

- Over six percent of adolescents had a six month substance abuse disorder (either abuse or dependence).
- By age seventeen, one in six (17 percent) had a six month substance abuse disorder.

Need for Treatment

The interview asked questions about very heavy drug use and self-perceived need for treatment. These were combined with the diagnostic criteria to define a group of adolescents who needed alcohol or other drug treatment.

- Nearly nine percent (8.67 percent) of adolescents needed treatment for alcohol or drug abuse in the past 12 months (43,216 adolescents in State Fiscal Year 1999).
- Among seventeen year olds, more than one in five needed treatment in the past 12 months.

Treatment Penetration among those eligible for public funding

Of those adolescents needing treatment, almost half (21,438 youth in FY99), are estimated to be eligible for full or partial DASA funding for substance abuse treatment.

- In FY 1999, DASA served 4,557 clients under the age of 18.
- ***One in five (21%) of adolescents who needed DASA treatment actually received it.*** (4,557 clients /21,438 in need).

These young people need and deserve more service than this.

CHAPTER ONE

Overview of Adolescent Household Survey

Project Goals

Between December 1998 and July 1999, 1,259 Washington State adolescents living in their parents' homes were interviewed by telephone. The interviews were conducted on behalf of the Washington State Department of Social and Health Services by trained interviewers from Washington State University's Social and Economic Services Research Center. The study was funded by a contract from the federal Center for Substance Abuse Treatment.

The primary goals of the Washington State Adolescent Household Survey were to:

- Provide statewide estimates of adolescent rates of alcohol and other drug use, abuse, and dependence (based on the Diagnostic Interview Survey for Children, which assesses DSM-III-R psychiatric diagnoses), and need for treatment. The following drugs were included:
 - Alcohol
 - Heroin
 - Hallucinogens
 - Marijuana
 - Anabolic Steroids
 - Sedatives
 - Cocaine, including Crack
 - Inhalants
 - Amphetamines, including Meth
 - Prescription Pain Medications
 - Tranquilizers
- Compare selected results from this adolescent household survey to a national household survey that includes adolescents (the National Household Survey on Drug Abuse), and national and state school surveys (the Monitoring the Future Survey and the Washington State Survey of Adolescent Health Behaviors).
- Construct synthetic estimates for all Washington counties of the rate of need for alcohol or drug treatment among adolescents.
- Analyze the relationship between selected risk factors and alcohol and other drug use.
- Estimate the number of adolescents eligible for publicly funded substance abuse treatment services using data on household income, household size, and health insurance status.

Sampling Method and Design

The population for the Adolescent Household Survey included all Washington State households that had an adolescent between the ages of 12 and 17. Because there is no universal list of all such households from which a random sample could be obtained, the survey used random digit dial (RDD) sampling methods. Random digit dialing includes both listed and unlisted numbers. Only households without telephones and households where the parents speak neither English nor Spanish were excluded from the sampling frame.

The sample was drawn from randomly dialed telephone numbers associated with blocks of Zip codes in Washington State, and stratified by neighborhood characteristics. All Washington State Zip codes, with the exception of postal Zips, were divided into eight strata defined by combinations of geographic location (Eastern or Western), population density (Urban or Rural), and risk of problem youth behavior (High or Low).

- Geographic location was defined as Eastern and Western Washington;
- Urban and rural areas as defined by population density. For this purpose the cutoff between urban and rural was defined 3,000 persons per square mile. Areas equal to or greater than 3,000 person per square mile were defined as urban while those below were defined as rural.
- Risk was a composite variable consisting of unemployment rates, poverty rates and education levels.

The RDD sampling frame was prepared by Genesys Sampling Systems. Telephone numbers were generated randomly by a computer, after determining all the working telephone exchanges and working blocks within the state. All possible combinations of telephone numbers within these exchanges and blocks were determined, and the sample for each strata was drawn from this sampling frame.

Household and Respondent Selection and Response Rates

Households were first screened for the presence of one or more adolescents between the ages of twelve and seventeen. Households containing eligible adolescents were then asked to complete the adolescent substance abuse survey. If there was more than one adolescent, the respondent was chosen randomly using the “last birthday” method.

For all adolescent respondents, a parent or guardian was first asked for permission to conduct an interview with the adolescent. Parents or guardians who did not live at the same household with the respondent were also contacted for permission. Once parental permission was obtained, the adolescent was asked to participate.

To help provide confidentiality for the adolescent respondent, interviewers were instructed to make an appointment for an interview at a later time. The adolescent respondent was able to choose a time and place which allowed them to answer questions

without the parent or guardian’s knowledge of the adolescent’s answers. In some instances, the eligible adolescent was more comfortable calling the Social and Economic Research Center’s toll-free number and completing the survey at that time.

The total survey cooperation rate among households reached was 64%. The response rate among eligible households was 58%. Several factors helped increase completion and cooperation rates despite the three-stage refusal process (households not reached, adults refused, adolescents refused). These included: a minimum of ten call attempts, varied as to time of day and week; two days of interview training and ongoing monitoring of interview performance; refusal conversion, and translations into Spanish. The survey instrument was translated and back-translated into Spanish so that Spanish speaking adolescents or parents could be interviewed in their own language.

The final sample, as planned, had about 150 completed interviews in each neighborhood type, permitting future analytic comparisons across neighborhoods of differing densities, risk levels and parts of Washington state. Cooperation rates were similar across all neighborhood types.

Sample Characteristics

The following tables show the characteristics of the sampled households and adolescents without population weights.

Table 1: Sample Household Size, Income and Poverty Status (Unweighted)

Characteristics	Number of Respondents
Household Income	
• Less than \$5000	36
• \$5,000 to \$15,000	109
• \$15,000 to \$25,000	155
• \$25,000 to \$35,000	172
• \$35,000 to \$50,000	250
• \$50,000 to \$75,000	253
• \$75,000 and up	164
• Don’t know or refused	119
Household Size	
• Two	66
• Three	275
• Four	411
• Five	280
• Six	130
• Seven or more	95
Household Poverty Status	
• At or below 200% of the federal poverty level	431
• Above 200% of the federal poverty level	735
• Unknown or refused income questions	84

Table 2: Demographic Characteristics of the Adolescents Sampled (Unweighted)

Characteristics	Number of Respondents
Sex	
• Female	614
• Male	636
Age when Interviewed	
• 12	170
• 13	219
• 14	210
• 15	228
• 16	238
• 17	185
Race and Hispanic Ethnicity	
• White, non Hispanic	951
• African American, non-Hispanic	30
• Asian-American, non-Hispanic	31
• American Indian, non-Hispanic	33
• Hispanic, all races	141
• Unknown	64

Analysis Methods

Responses were weighted by their population probability. Population estimates for the state and counties were divided into cells defined by the intersection of respondent characteristics (age, sex, poverty status) and place characteristics (density, community risk level and the East/West split). Logistic regression models were used to estimate rates for each cell in the population matrix.

Most analyses were carried out in SAS. However, to properly account for the stratified design, SUDAAN was used to estimate standard errors.

Technically, the county estimates of need for treatment are “synthetic estimates.” We do not directly estimate treatment need at the county level; instead, we estimate need for each county based on its population and place characteristics. The reported treatment rates, however, do reflect actual treatment counts from DSHS client data.

Topics Covered

The following topics were covered in the survey.

- Alcohol or other drug use (past 30 days, 6 months, lifetime)
- Alcohol or other drug abuse and dependence diagnoses, based on the Diagnostic and Statistical Manual, Version III-R (DSM-III-R) of the American Psychiatric Association. Diagnostic questions were drawn from the Diagnostic Interview Schedule for Children – the DIS-C.
- Substance abuse treatment history
- Perceived barriers to substance abuse treatment
- Disability status
- Mental health status (DSM-III-R Depression, Generalized Anxiety Disorder, and Panic Disorder)
- Demographic information about the adolescent
- Household income, size and poverty status
- Insurance status of the adolescent
- Risk and protective factors which could influence adolescent drug use, including:
 - Transition and mobility
 - Perceived laws and norms favorable to drug use
 - Perceived availability of alcohol, tobacco, other drugs, and firearms
 - Family management practices
 - Parental attitudes about antisocial behavior
 - Family attachment
 - Family history of drug or alcohol use
 - Academic success or failure
 - Commitment to school
 - Antisocial behavior history
 - Personal attitudes about alcohol or other drug use
 - Friend's use of alcohol or other drugs

CHAPTER TWO

Comparison with National and Other State Studies

The answers that people give to questions about illegal behavior such as drug use are influenced by a number of factors that can vary across surveys. These include trust in the interview process itself, the relationship with the interviewer, the perceived confidentiality of the data, and the place context – home, school, work or neutral place – in which the questions are posed.

This chapter compares the Washington State Adolescent Household Survey (AHS) with three other studies of adolescent drug use – a state school survey, and a national household and school survey. While the trends across the surveys are similar, the comparisons demonstrate that context and method influence the magnitude of drug use estimates.

The Monitoring the Future Survey (MTF): The MTF survey is conducted by the University of Michigan Survey Research Center in collaboration with the Department of Health and Human Services (DHHS). It is an annual national survey of eighth, tenth, and 12th graders' use of alcohol and other drugs. It is an anonymous, paper and pencil survey and is administered in a probability sample of American schools during a class period. Data used for comparison purposes in this report are from the 1999 Monitoring the Future surveys.¹

The Washington School Survey of Adolescent Health Behaviors (WSSAHB): The WSSAHB was completed in 1998 through a cooperative effort by the Office of the Superintendent of Public Instruction (OSPI), the Department of Social and Health Services (DSHS), and the Department of Community, Trade, and Economic Development (CTED). The WSSAHB is the fifth in a series of school surveys of 6th, 8th, 10th, and 12th graders' attitudes and behaviors.² It is an anonymous paper and pencil survey, and is administered in a probability sample of Washington schools during a class period.

The National Household Survey on Drug Abuse (NHSDA): The National Household Survey on Drug Abuse (NHSDA) is conducted annually by the Substance Abuse and Mental Health Services Administration (SAMHSA). For the 1998 NHSDA survey, data were gathered from a probability sample of 25,500 individuals, ages 12 and older, at their homes. The interview begins with face-to-face questions and answers, but when the section on drug use is reached the respondent is handed a paper-and-pencil survey to fill in, seal and mail.³

¹The MTF is an ongoing study of the behaviors of some 50,000 8th, 10th and 12th grade students who are surveyed. For additional information, see the MTF web site at <http://monitoringthefuture.org/>.

²Information from the WSSAHB for this report was taken from Washington State Survey of Adolescent Health Behaviors: Analytic Report, OSPI, DSHS, CTED, 1998.

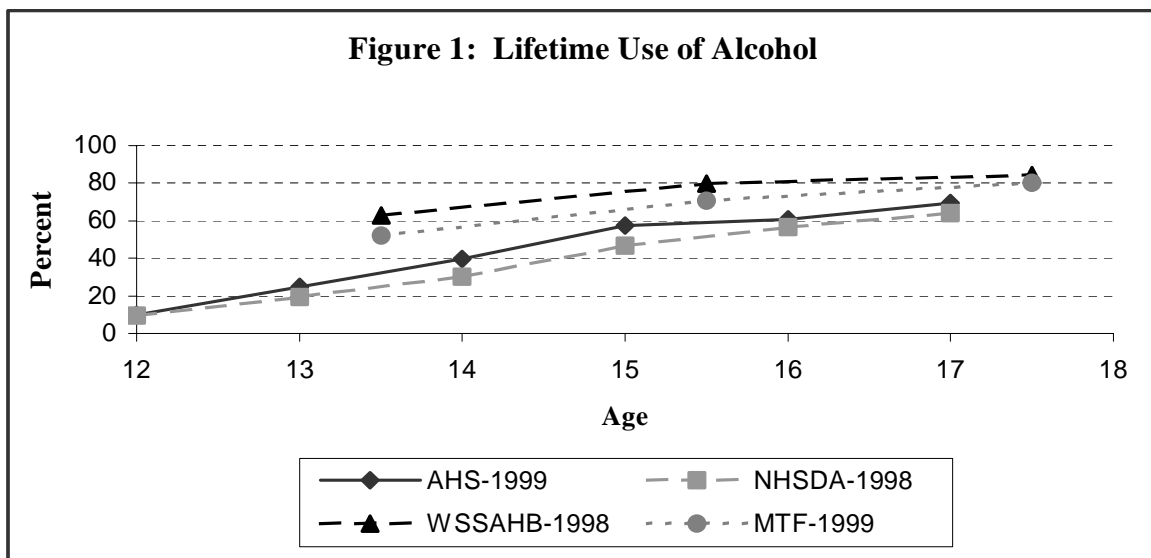
³For additional information, see the NHSDA web site at www.samhsa.gov.

Age Comparisons Across Surveys

Age specific data are available for both the state and national household surveys. The school surveys are reported by grade level rather than by age. To generate age-adjusted rates to compare with those in the household surveys, it was assumed that on average eighth graders were 13.5 years old, tenth graders were 15.5 years old, and twelfth 17.5 years old.

Lifetime Use Comparison

Figure 1 below compares information from the NHSDA, MTF, WSSAHB and the Adolescent Household Survey about lifetime use of alcohol in adolescents.



Lifetime use means that the respondent indicated they had a drink or glass of beer or wine at least once in their lives. Typically as adolescents become older, they are more likely to have used alcohol at least once, and that is what this graph shows.

The two household survey reports of lifetime alcohol use by age (Washington State AHS and national NHSDA) are similar to one another, and so are the two school survey reports (Washington State WSSAHB and national MTF).

On each type of survey, the alcohol use of Washington State adolescents is slightly above the national rates for adolescents of similar ages.

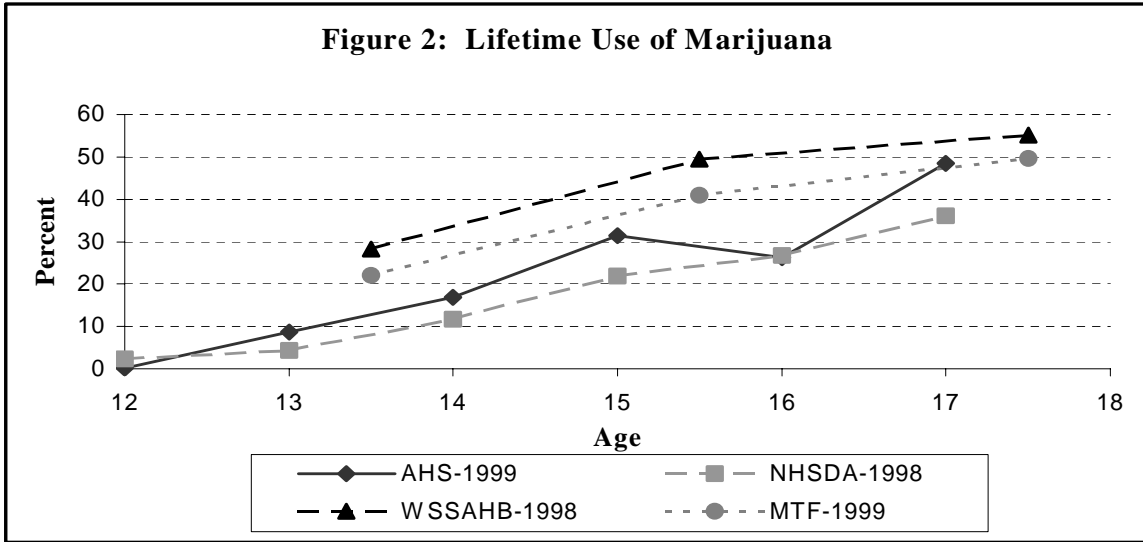


Figure 2 above shows that both the household and school surveys suggest that Washington’s adolescents have higher lifetime use of marijuana than the nation’s adolescents. The drop in use at age sixteen is consistent throughout the AHS. It is not statistically significant when compared to the marijuana use of the fifteen year olds.

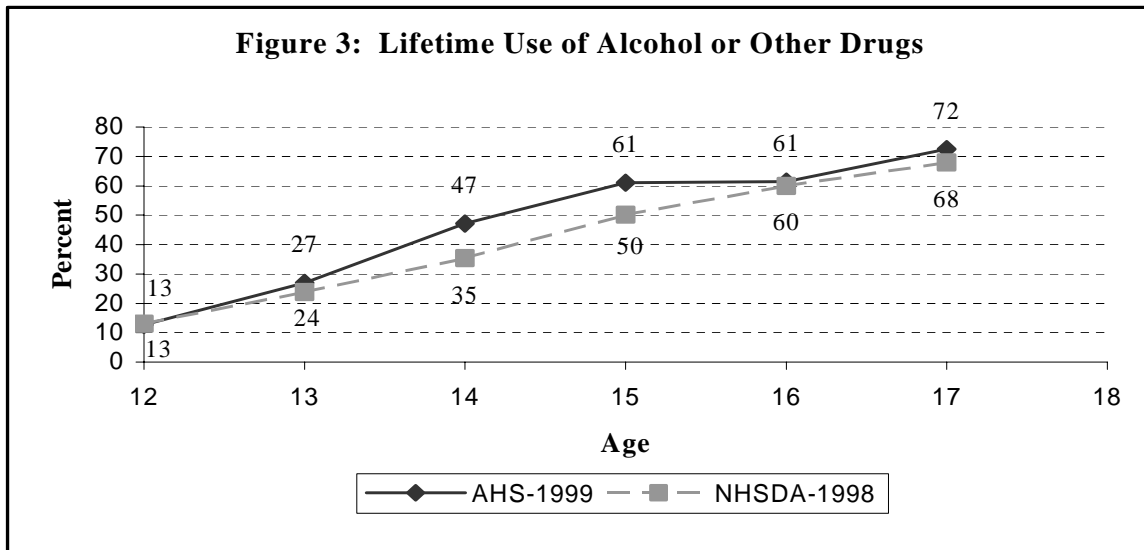
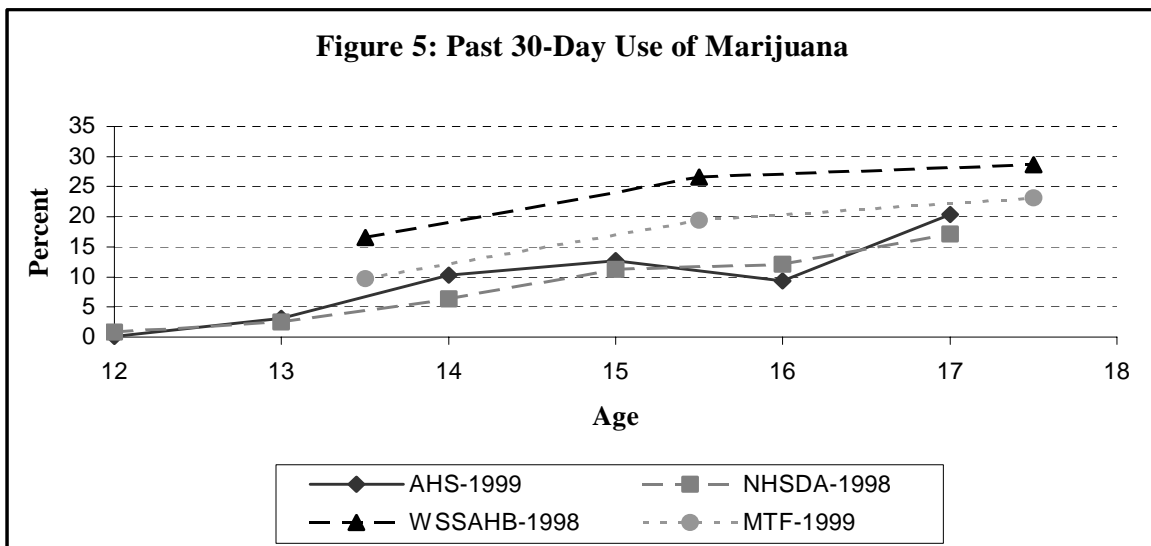
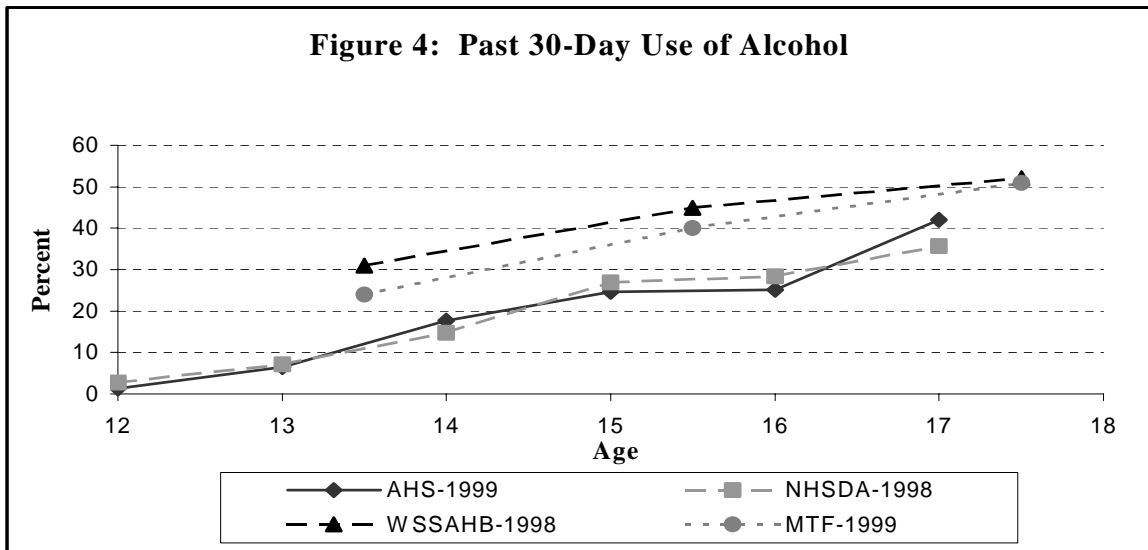


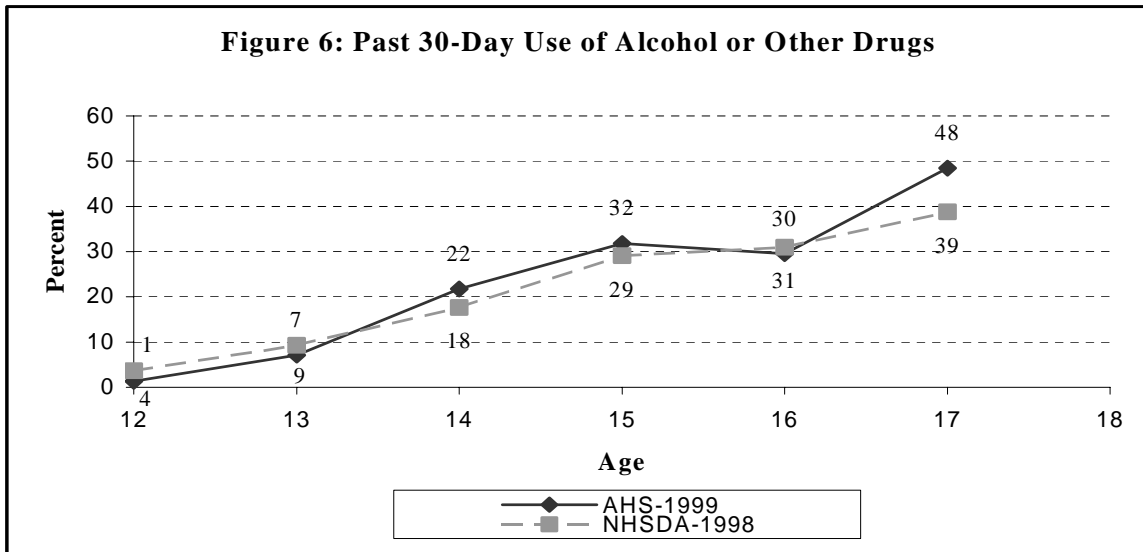
Figure 3 above compares the Washington household survey (AHS) with the national household survey (NHSDA) about lifetime use of all drugs or alcohol. These respondents used alcohol and other drugs such as marijuana, cocaine, heroin, amphetamines, narcotic pain relievers, steroids, inhalants, sedatives, or hallucinogens. The younger Washington State adolescents apparently have higher lifetime use of alcohol and other drugs than the nation’s adolescents, although the differences are very slight after age 16. (The school surveys are not included because published sources do not permit an unduplicated comparison covering the same drugs).

Past Thirty Day Use Comparisons

The charts below show comparisons between the MTF, the AHS, NHSDA and the WSSAHB for past thirty-day use of alcohol, marijuana, and alcohol or other drugs combined. On all three charts, the following patterns are clear:

- The national and state household surveys are similar.
- The national and state school surveys are similar.
- Washington State rates are slightly higher than national rates.
- The household survey rates are lower than the school survey rates.





Discussion

The variation in the rates of substance use measured in these surveys is influenced by methodological differences. While the trends in substance use are similar, data gathered through face-to-face or telephone interviews in households generate lower use rates than data gathered through anonymous pen-and-pencil surveys in schools. This is true in both the two Washington state studies and in the two national studies.

It is unclear which estimates -- those gathered in schools or in households -- are closer to the “true prevalence.” Young people may be more likely to tell the truth about their use in an anonymous school survey. Or they may be more likely to exaggerate their daring behavior in an anonymous school survey, with no interviewer urging truth and letting them know that their real behavior is important.

A more complex possibility is that the adolescents may be presenting themselves in a manner which is “socially desirable” for each setting – cautious within the household where the parents values predominate; risk-taking within the school where the peer values predominate. This question deserves serious investigation at a national level.

Meanwhile, these comparisons show that the Washington State Adolescent Household Survey is generating valid data, and that substance use – particularly marijuana use – is higher among Washington State adolescents than in the nation as a whole. Local differences between states are one of the reasons to carry out state surveys, rather than simply using national rates to estimate statewide need.

This comparison also provides additional validation of the approach of using telephone surveys in states, to complement the much more expensive face-to-face survey methods

used by the National Household Survey on Drug Abuse. The Washington State telephone survey, which might have been expected to have lower reported rates of illegal substance use, actually generated *higher* rates of substance use than did the national survey among the total sample and for every age group except the sixteen year olds.

CHAPTER THREE

Adolescent Household Survey Research Findings

This chapter presents data on the use of various drugs, and explores the demographic characteristics that are associated with different levels of adolescent drug and alcohol use. Lifetime, thirty day, and “heavy” use are examined. Most of the data presented in this chapter are from the Adolescent Household Survey and are weighted to represent the entire population of Washington State adolescents aged 12 through 17 living in households. Trends in use rates by age through age 29 are estimated using data from the Washington State Needs Assessment Household Survey of adults.

Table 3 shows the percent of adolescents using each separate substance during their lifetime, the past year, and the past 30 days. During all time periods, alcohol is the most frequently used drug, and marijuana is second. Inhalants have been used at least once by seven percent of all adolescents, but are much less likely to have been used during the past 30 days.

Table 3: Substance Use Among Washington State Adolescents Aged 12 - 17

Substance used	Percent using at least once in lifetime	Percent using at least once in past 12 months	Percent using at least once in past 30 days
Alcohol or Other Drug	46.6%	40.0%	23.1%
Alcohol	43.3%	37.7%	19.4%
Marijuana	21.8%	18.2%	9.3%
Inhalants	7.2%	2.9%	0.4%
Other Opiates	7.2%	5.8%	2.8%
Hallucinogens	5.7%	4.3%	1.2%
Stimulants	3.4%	2.7%	0.5%
Powder Cocaine	2.1%	1.7%	0.3%
Tranquilizers	1.9%	1.3%	0.5%
Sedatives	1.6%	0.8%	0.4%
Crack Cocaine	1.0%	0.9%	0.6%
Heroin	0.7%	0.3%	0.1%

Lifetime Use

This section examines lifetime substance use by adolescents in Washington State. 'Lifetime Use' means that during the course of questioning, the adolescent, when asked, acknowledged that they have used alcohol and/or another drug at least once during their life. 'Alcohol Use' means that the adolescent had a beer, a glass of wine or an alcoholic drink, not just a sip or taste of someone else's drink.

The chart below compares the lifetime total alcohol or other drug use by gender, for twelve through seventeen year olds. The gender differences are small: overall, 43 percent of the adolescent girls and 50 percent of the adolescent boys have tried alcohol or another drug at least once.

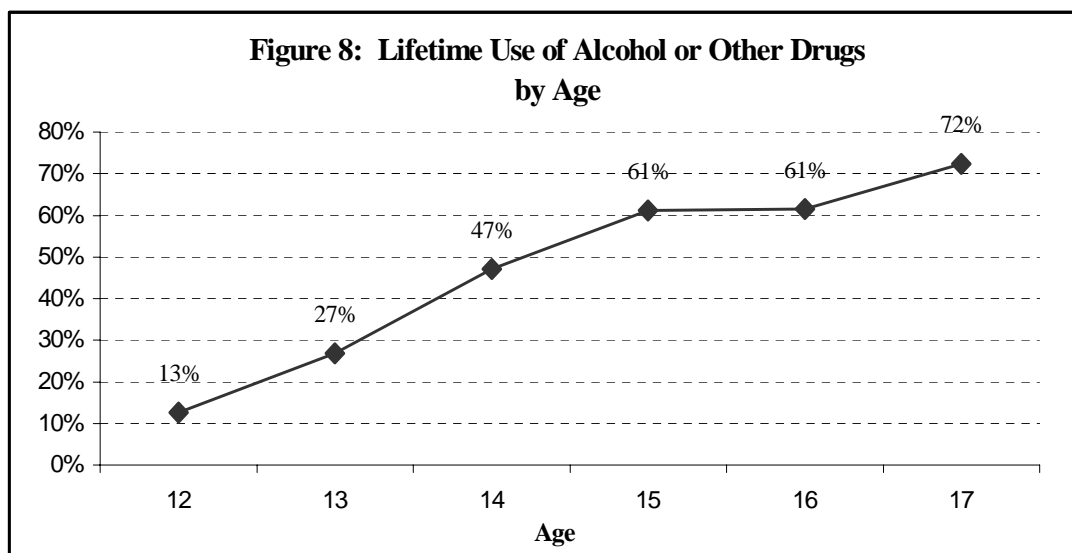
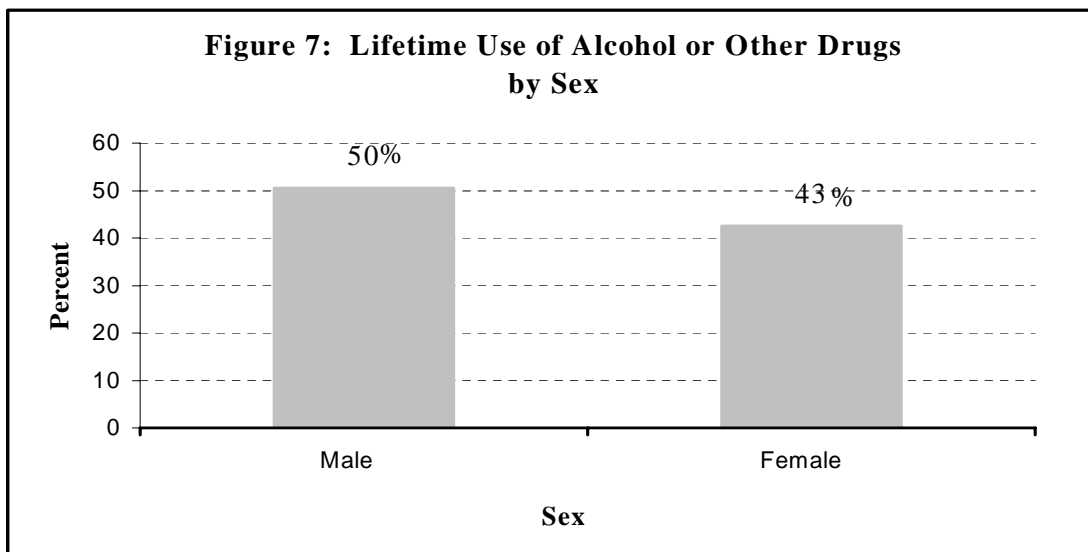


Figure 8 above combines lifetime alcohol use with the lifetime use of other drugs. It is startling to see that thirteen percent of all twelve year olds have used at least one substance at least once; by age fifteen and sixteen, 61 percent have used at least once.

Figure 9 pulls alcohol out of the mix. Alcohol is clearly the most prevalent drug at any age. Most people who use or abuse other drugs also drink.

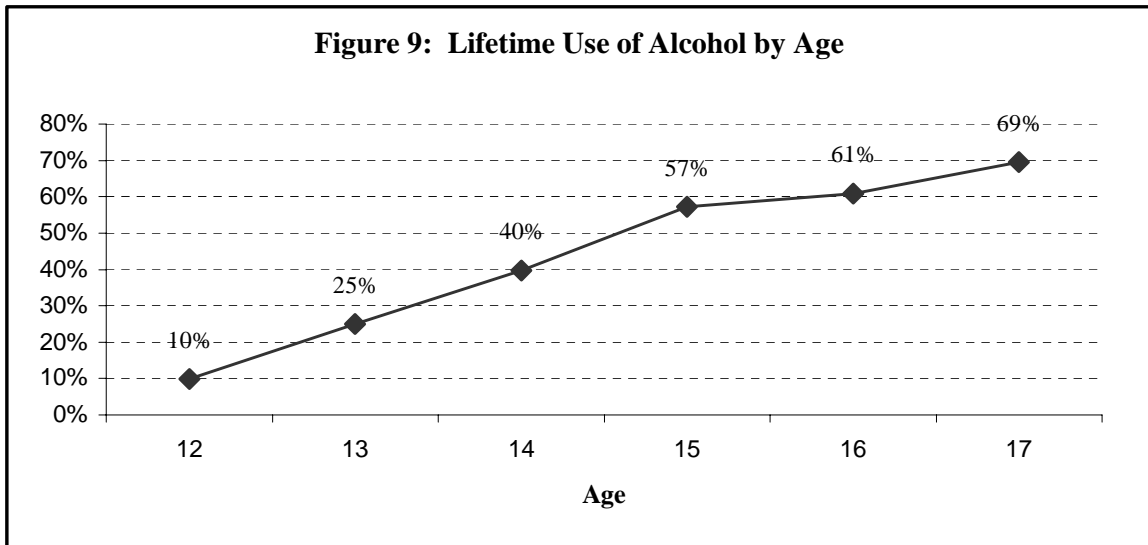


Figure 10 shows that marijuana use also increases with age. (Once again, the “dip” at age sixteen does not represent a statistically significant difference in rates between fifteen and sixteen year olds). It is startling to see here that 17 percent of Washington’s 14 year olds, and 31 percent of the 15 year olds, have tried marijuana.

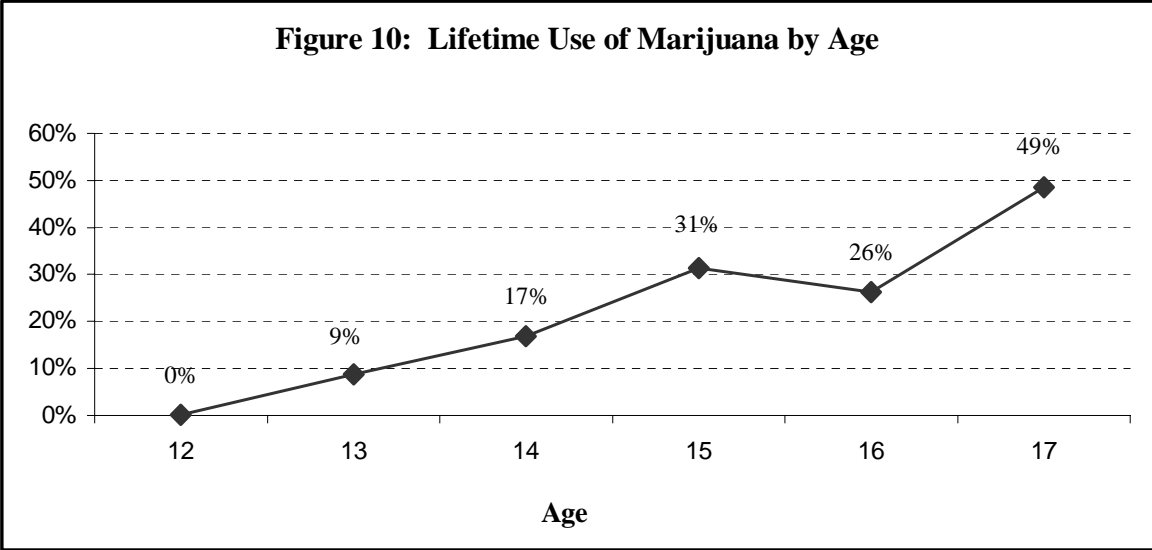
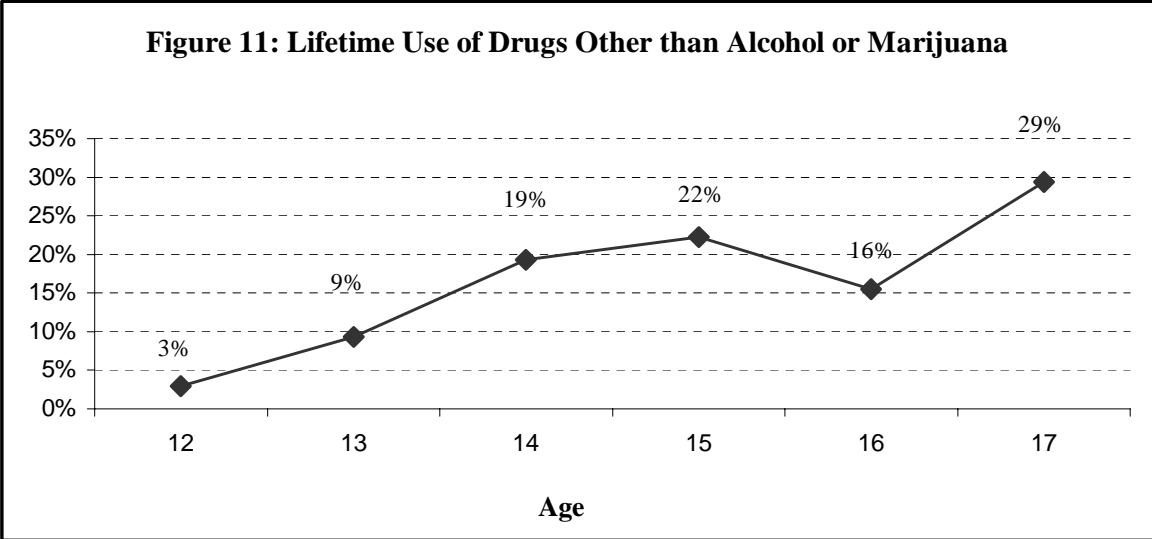


Figure 11 shows that by age 17, almost thirty percent of all adolescents have tried at least one of the following drugs: Cocaine, including Crack, Heroin, Inhalants, Hallucinogens, Amphetamines, Marijuana, Prescription Pain Medications, Anabolic Steroids, Tranquilizers, and Sedatives.



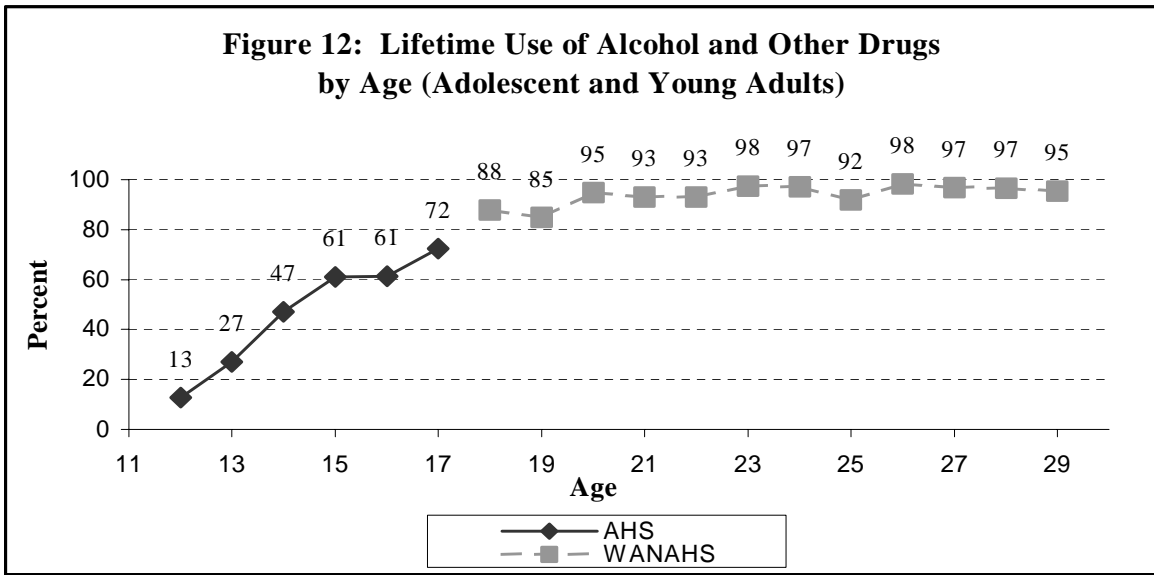


Figure 12 above combines information from two state household surveys, the AHS and the WANAHS.⁴ The trend from 17 to 19 continues upward, at a decreasing rate (there isn't really much further to go!)

⁴ The Washington State Needs Assessment Household Survey was conducted in 1993-94. Over 7,000 adults were interviewed. The findings for the survey can be found in Substance Abuse, Substance Abuse Disorder and Need for Treatment among Washington State Adults, DSHS, 1996.

Past Thirty-Day Use

This section examines past 30-day use by adolescents in Washington State. By ‘past 30-day use’ is meant that during the course of questioning, the adolescent respondent, when asked, acknowledged or responded that they have used alcohol or another drug at least once during the past 30 days.

Figure 13 below examines 30 day use of any drug by gender. The differences are small. Almost half of those who “ever used” apparently used in the past 30 days as well. In adult men and women, differences by sex are greater than among these adolescents.

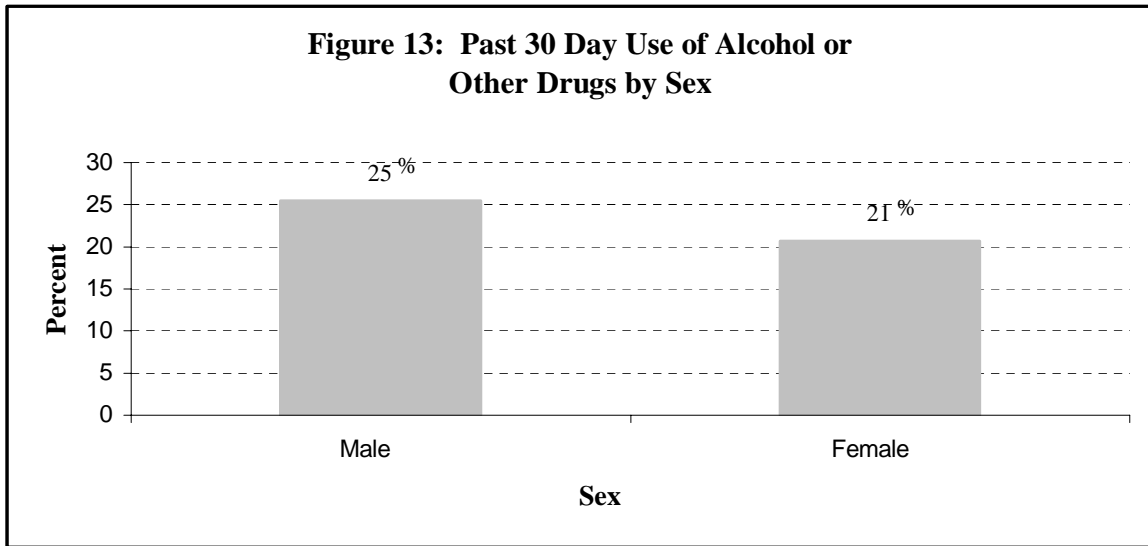


Figure 14 shows that almost half (48 percent) of Washington’s seventeen year olds have used at least one substance during the past month.

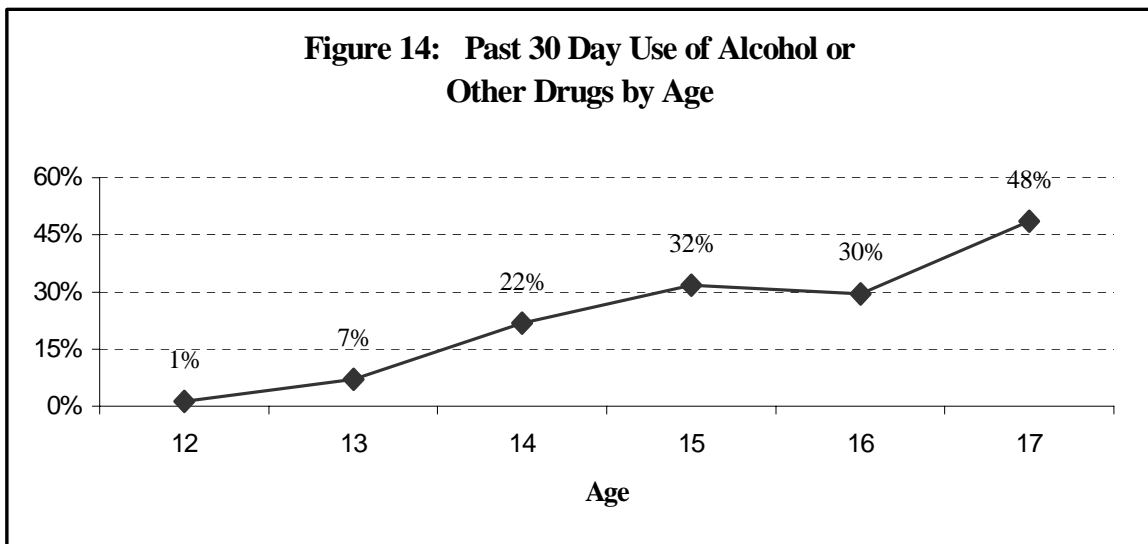


Figure 15 shows that 7 percent of Washington’s 13 year olds, and 42 percent of Washington’s seventeen year olds, had at least one drink during the past month.

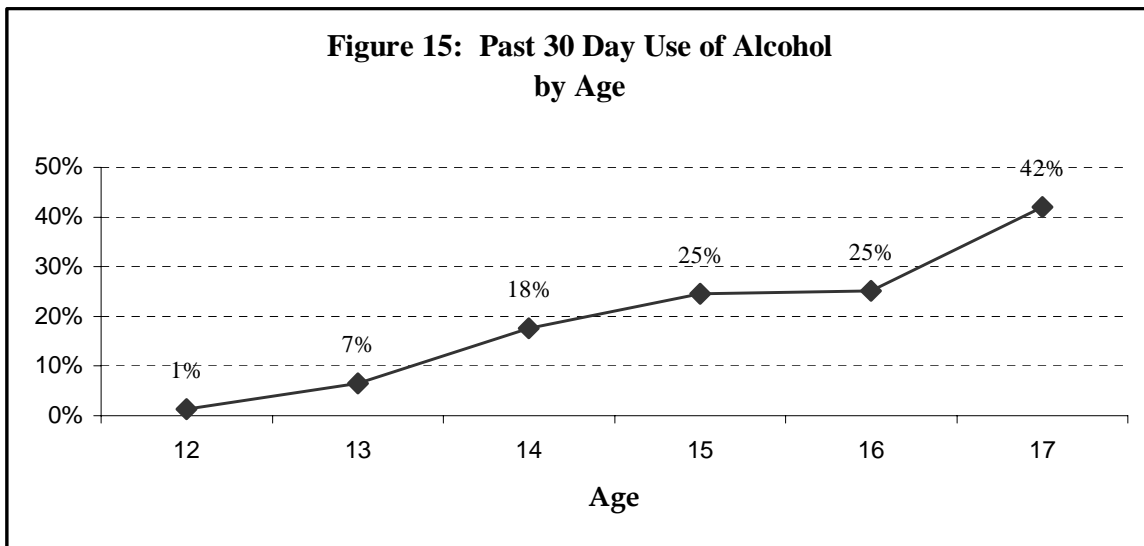
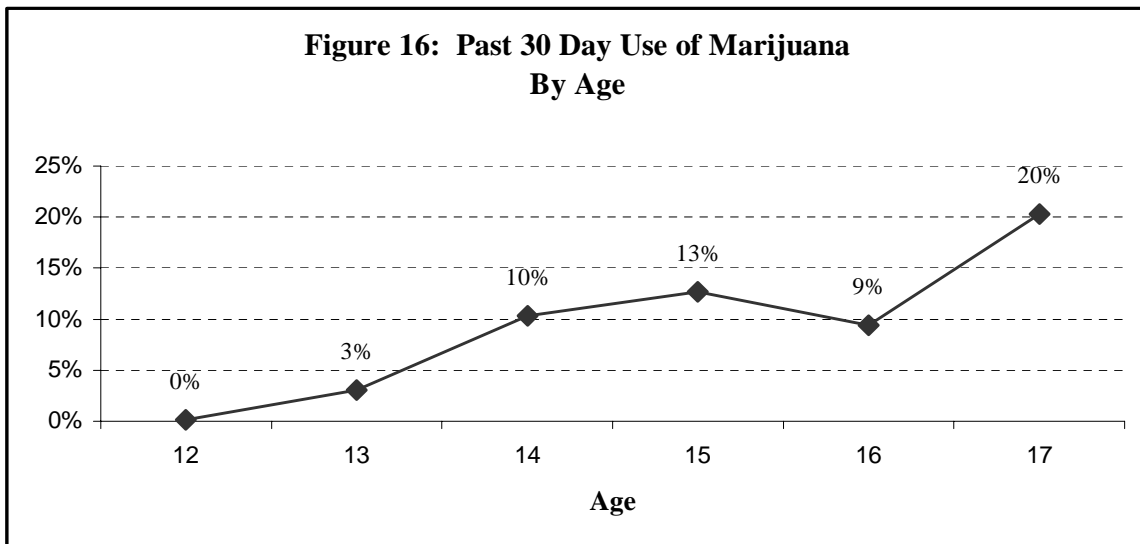


Figure 16 shows that 10 percent of Washington’s 14 year olds smoked marijuana during the past month – half of the seventeen year old rate.



Use of other drugs is not as common as alcohol and marijuana. However, by age 13, three percent of Washington’s adolescents have used an illegal drug other than alcohol or marijuana during the past 30 days.

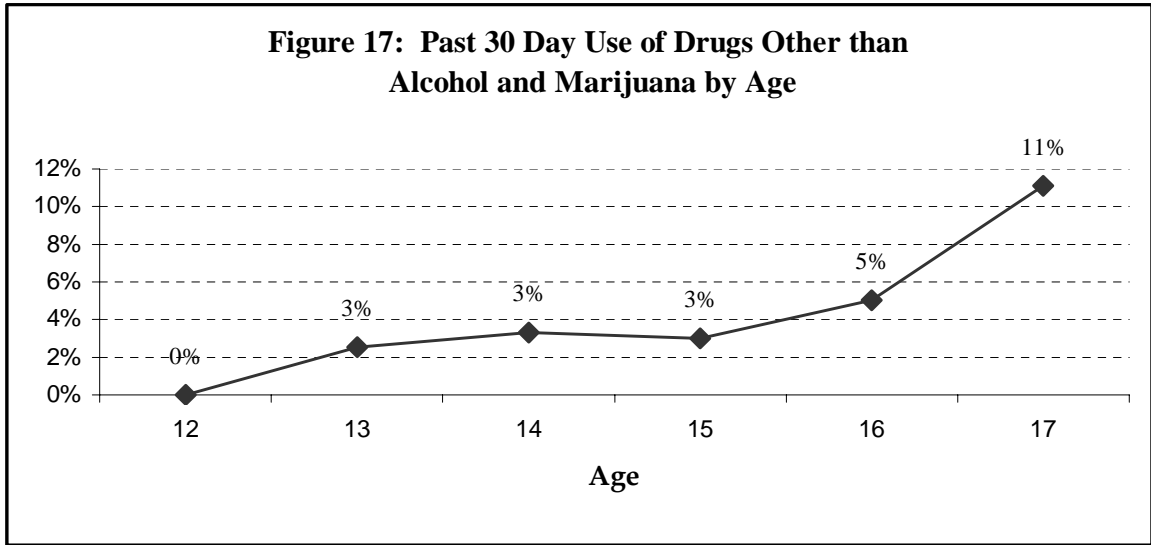
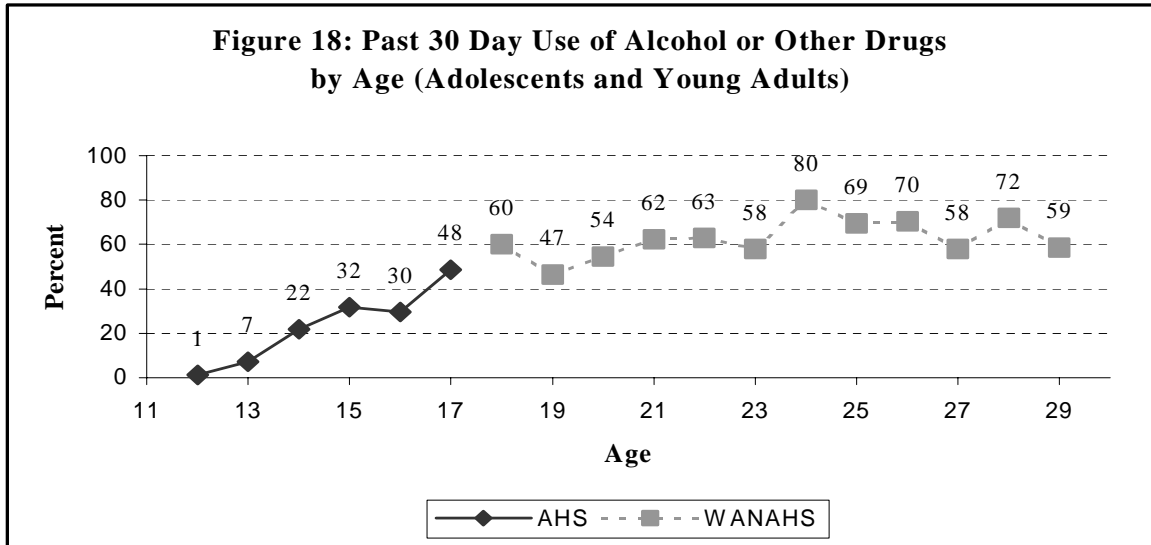
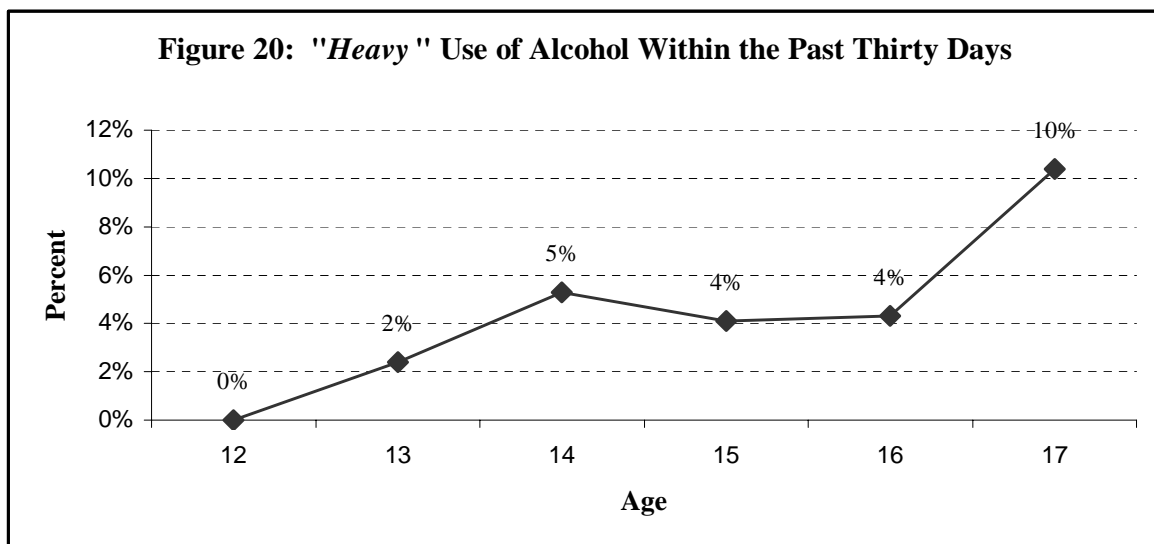
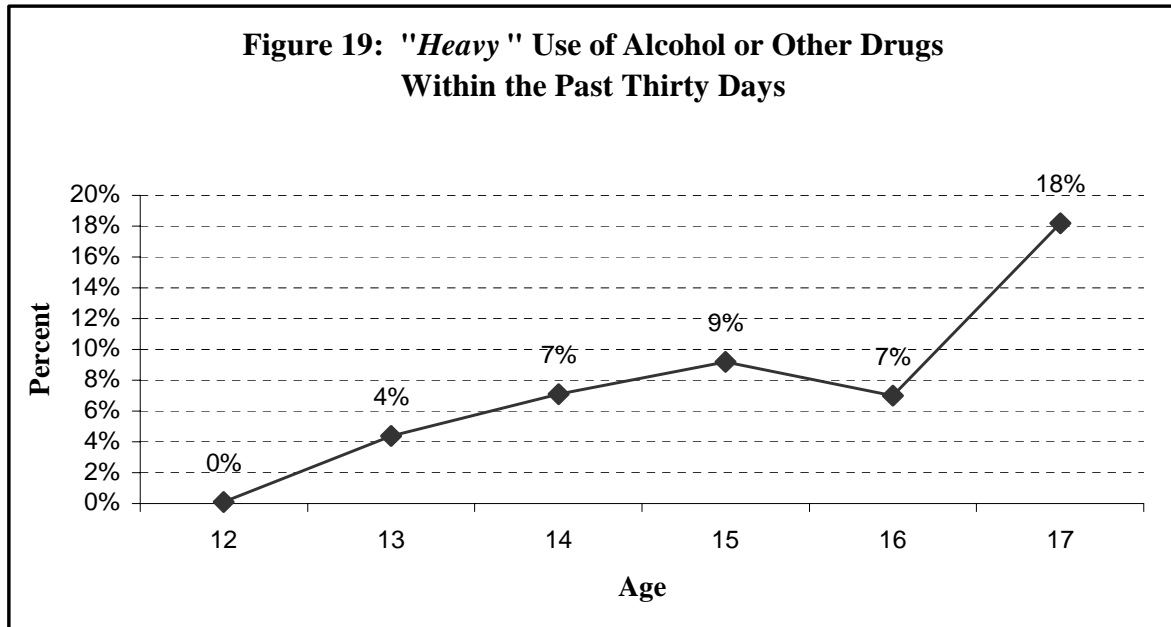


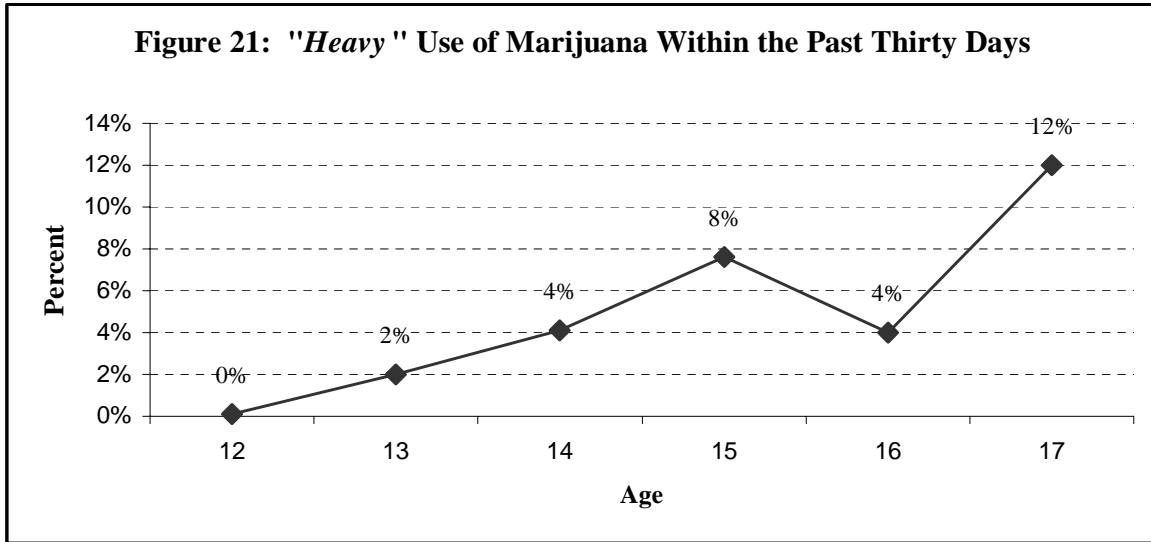
Figure 18 combines the two household surveys again, to show how substance use during the past thirty days rises with age, peaking in the early twenties.



Heavy Use

Adolescent 'heavy' use is examined below. 'Heavy' use is defined here as use of alcohol or another illegal drug six or more times in the prior 30 days. Figures 20 and 21 show that adolescents are slightly more likely to be using marijuana heavily, compared to alcohol. Other illegal drugs are used heavily by a very small percentage of adolescents.





Age at First Use

The age at which adolescents first use a substance is a risk factor for abuse later in life. For Washington adolescents:

- The average age of first use of alcohol is 13 years.
- The average age of first use for marijuana is 13.6 years.

Insurance Coverage

The survey asked about the adolescent's health insurance status. Information about health insurance coverage and household income was used to estimate the proportion of Washington State adolescents who would be eligible for substance abuse treatment funded wholly or partially by the DSHS Division of Alcohol and Substance Abuse (DASA).

Full DASA funding is available to adolescents who are uninsured and whose family income is below 80% of the state median income. Many of those adolescents have health care coverage from Medicaid. Partial funding is available to "wrap around" parental or insurance coverage, for adolescents whose families are below the state median income.

- 26 percent of Washington's adolescents living with their parents are eligible for full DASA funding (131,585).
- 28 percent are eligible for partial DASA funding (135,488).
- The remaining 46 percent are not under most circumstances eligible for DASA funding, since they live in families with incomes above the state median and with insurance coverage (230,374).

CHAPTER FOUR

Risk Factors and Adolescent Alcohol and Drug Use

There is significant research over the past two decades on the relationship between risk factors and alcohol or illegal drug use by adolescents. Risk factors may be described as characteristics of the community in which adolescents live, the family with whom they live, the friends and associates with whom they spend time, their attitudes about education and their future, and personal attitudes about factors such as violence or drug and alcohol use.

Data were collected on the following risk factors⁵; the items measuring them are detailed in Section G of the survey instrument. The items were developed by David Hawkins and Richard Catalano of the University of Washington.

- Transition and mobility (a combination of divorce, moving and changing families)
- Laws and norms favorable to drug use
- Perceived availability of alcohol, tobacco, other drugs, and firearms
- Family management
- Parental attitudes about antisocial behavior
- Family attachment
- Family history of drug or alcohol use
- Academic success or failure
- Commitment to school
- Antisocial behavior
- Personal attitudes about drug or alcohol use
- Friends use of alcohol or drugs

Bivariate Relationships Between Risk Factors and Substance Use/Abuse

Figures 22 and 23 show that all but one of the above risk factors are significantly associated with past 30 day use of alcohol and marijuana by Washington State adolescents. The only “failing” risk factor is the first one, transitions and mobility. It has been dropped from the later analysis, which concentrates on the impact of multiple risk factors on use.

⁵ The instrument used for this project does not include items that are considered ‘protection’ factors. This type of factor includes characteristics such as religiosity or opportunities for pro-social involvement.

Figure 22: Percentage of Adolescents Using Alcohol During Past 30 Days by Risk Factor

Risk Factor	Low Risk	High Risk	Significant Difference?
Transition and Mobility	20%	20%	No
Laws and Norms Favorable to Drug Use	14%	27%	Yes
Perceived Availability of Alcohol, Tobacco, Other Drugs, and Firearms	4%	30%	Yes
Family Management	18%	41%	Yes
Parental Attitudes about Antisocial Behavior	16%	38%	Yes
Family Attachment	11%	25%	Yes
Family History of Drug or Alcohol Use	16%	29%	Yes
Academic Success or Failure	20%	28%	No
Commitment to School	17%	32%	Yes
Antisocial Behavior	9%	32%	Yes
Personal Attitudes about Drug or Alcohol Use	18%	34%	Yes
Friends Use of Alcohol or Drugs	7%	38%	Yes

Figure 23: Percentage of Adolescents Using Marijuana During Past 30 Days by Risk Factor

Risk Factor	Low Risk	High Risk	Significant Difference?
Transition and Mobility	10%	11%	No
Laws and Norms Favorable to Drug Use	7%	14%	Yes
Perceived Availability of Alcohol, Tobacco, Other Drugs, and Firearms	1%	16%	Yes
Family Management	9%	24%	Yes
Parental Attitudes about Antisocial Behavior	8%	21%	Yes
Family Attachment	4%	14%	Yes
Family History of Drug or Alcohol Use	6%	19%	Yes
Academic Success or Failure	10%	27%	Yes
Commitment to School	7%	22%	Yes
Antisocial Behavior	2%	19%	Yes
Personal Attitudes about Drug or Alcohol Use	8%	25%	Yes
Friends Use of Alcohol or Drugs	3%	21%	Yes

Figure 24 shows the impact of each risk factor on the likelihood that the adolescent has a six month need for treatment. Need for treatment is described in more detail in Chapter 5. An adolescent needing treatment either:

- reported that they need treatment,
- continues to use despite self-reports of problems and dangers, or
- is using at a very high level.

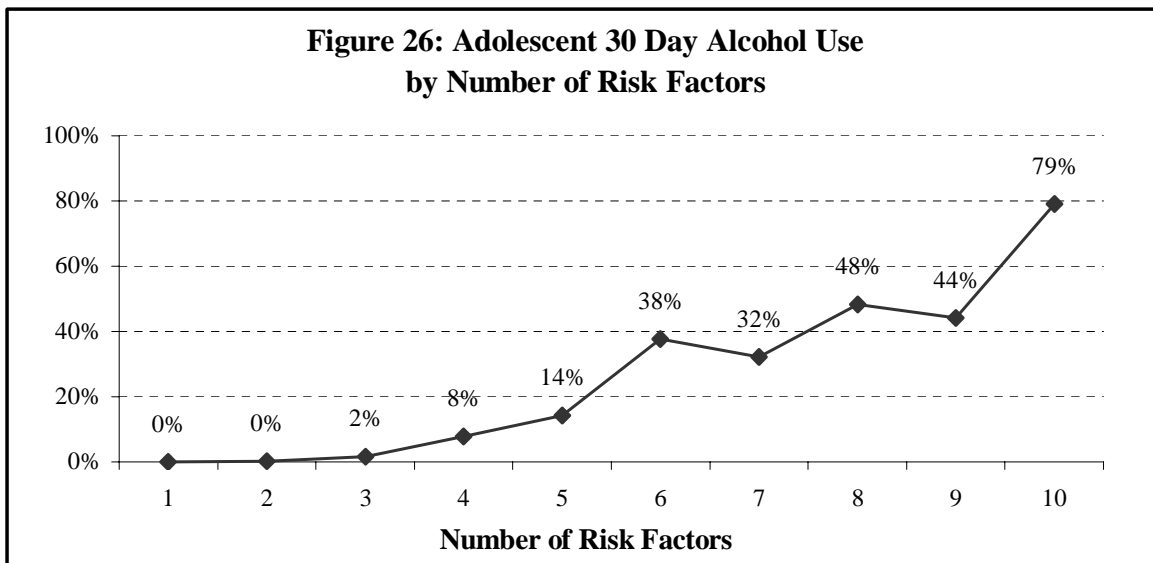
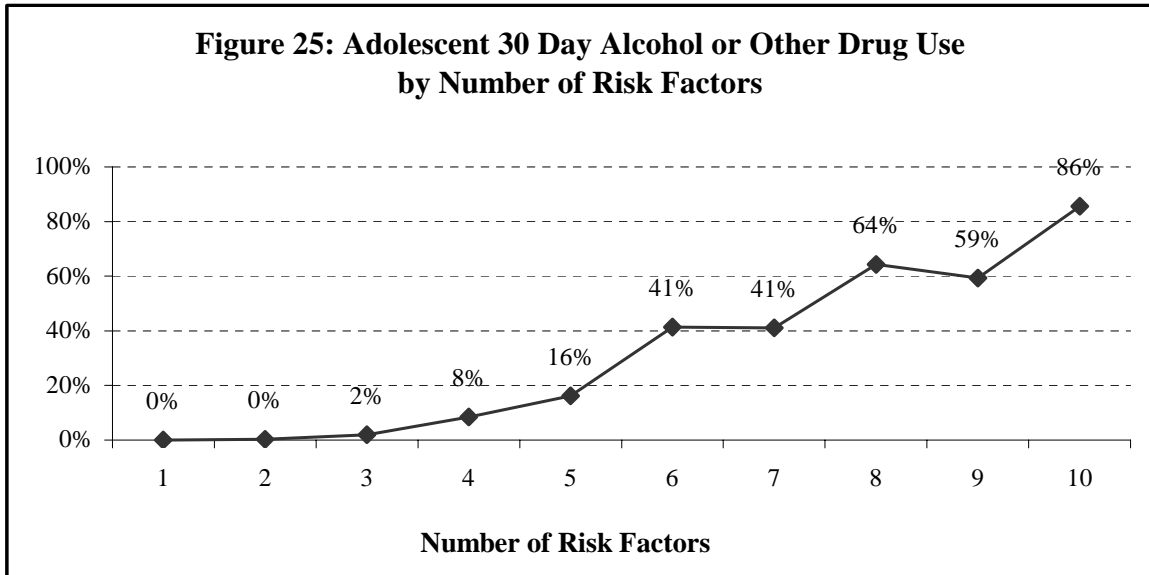
Most risk factors that are associated with substance use are also associated with need for treatment. The strength of the association varies, however, as the usage becomes problematic. For example, high risk of academic failure is more strongly associated with need for treatment than with past 30 day use of substances.

Figure 24: Percentage of Adolescents with Current Need of Treatment During Past Six Months, by Risk Factor

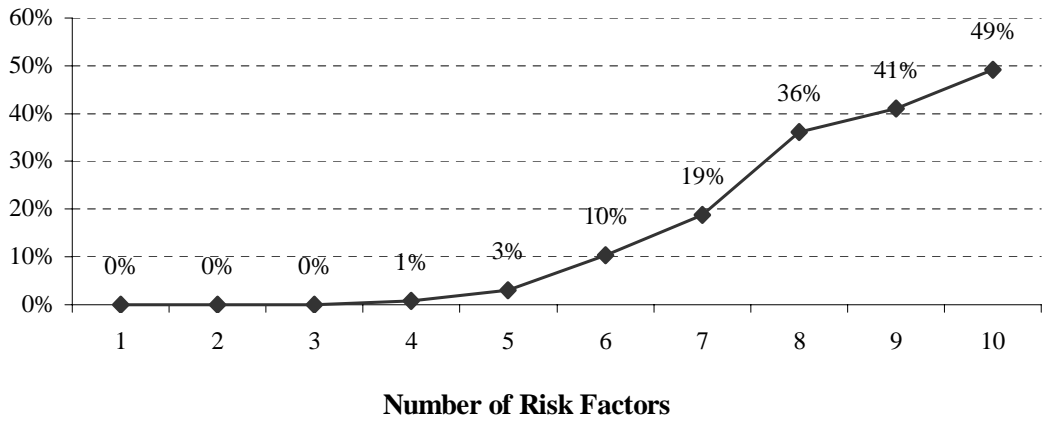
Risk Factor	Low Risk	High Risk	Significant Difference?
Transition and Mobility	8%	8%	No
Laws and Norms Favorable to Drug Use	4%	11%	Yes
Perceived Availability of Alcohol, Tobacco, Other Drugs, and Firearms	0%	13%	Yes
Family Management	6%	26%	Yes
Parental Attitudes about Antisocial Behavior	6%	14%	Yes
Family Attachment	2%	11%	Yes
Family History of Drug or Alcohol Use	5%	15%	Yes
Academic Success or Failure	6%	33%	Yes
Commitment to School	4%	19%	Yes
Antisocial Behavior	1%	17%	Yes
Personal Attitudes about Drug or Alcohol Use	7%	12%	No
Friends Use of Alcohol or Drugs	2%	16%	Yes

Effect of Multiple Risk Factors

Research shows that risk factors have a cumulative effect on substance use: the greater the number of risk factors affecting an adolescent, the more likely that adolescent is to abuse drugs or alcohol or engage in other problem behavior. The following charts show this to be true in this survey as well.



**Figure 27: Adolescent 30 Day Marijuana Use
by Number of Risk Factors**



CHAPTER FIVE

Substance Abuse or Dependence and Substance Abuse Disorder

The survey instrument used in both adolescent surveys incorporated items from the Diagnostic Schedule for Children (DIS-C), a survey tool designed to assess psychiatric disorders in general population surveys. The DIS-C scales used in here are based on the Diagnostic and Statistical Manual of the American Psychiatric Association, Version III-Revised (DSM-III R).

The table below shows the conceptual criteria (“symptoms”) used in assessing substance abuse disorder.

DSM III R Diagnostic Criteria for Abuse and Dependence
<ul style="list-style-type: none">• Substance often taken in larger amounts over a longer period than the individual intended.• Marked tolerance or markedly diminished effect with continued use of same amount.• Persistent desire or one or more unsuccessful attempts to cut down or control substance use.• Substance often taken to relieve or avoid withdrawal symptoms.• A great deal of time is spent in activities necessary to get the substance, taking the substance, or recovering from its effects.• Important social, occupational, or recreational activities given up or reduced because of substance use.• Frequent intoxication or withdrawal when expected to fulfill major role obligations or when use is physically hazardous.• Continued use despite knowledge of having persistent or recurrent social, psychological, or physical problems.• Individual is faced with characteristic withdrawal symptoms.

Definition of Six Month Dependence

An adolescent is diagnosed with ‘Six Month Dependence’ if:

- They have ever had three or more symptoms of dependence or abuse, AND
- At least two of those symptoms lasted a month or more or occurred repeatedly over a longer period.

Definition of Six Month Abuse

An adolescent is diagnosed with 'Six Month Abuse' if:

- They do not have a DSM-III-R diagnosis of substance dependence; AND
- They have ever continued substance use despite having recurrent social, occupational, psychological, or physical problems exacerbated by it OR used repeated in situations where use is physically hazardous; AND
- At least one symptom lasted a month or more or occurred repeatedly over a longer period.

Six Month Substance Abuse Disorder

An adolescent is diagnosed with a 'Six Month Substance Abuse Disorder' if she or he meets the criteria for either Six Month DSM-III-R alcohol or drug abuse criteria or Six Month DSM-III-R alcohol or drug dependence criteria.

- Over six percent of all adolescents have a diagnosis of a six-month alcohol or other drug disorder.
- For alcohol alone, the rate that adolescents experience is nearly three percent.
- The overall rate for 'Six Month Disorder' for Marijuana is slightly less than four percent
- For all other drugs combined it is just over one percent.

Below are charts that display data that show the level of disorder by age and type of drug.

Figure 28: Percent of Adolescents with Alcohol or Other Drug Disorder (Dependence or Abuse) in Past Six Months by Age

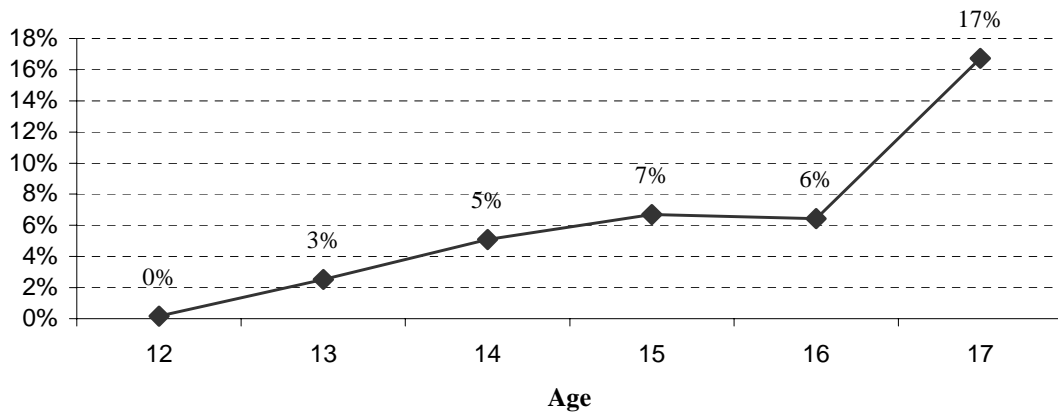
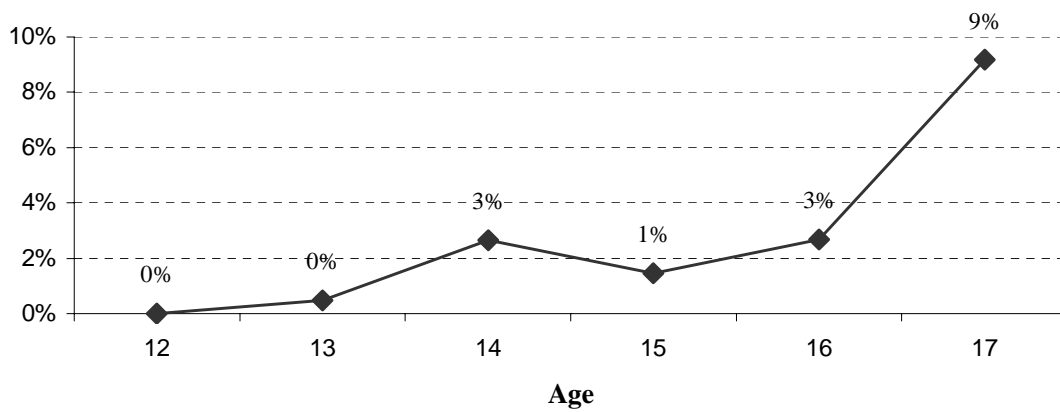


Figure 29: Percent of Adolescents with an Alcohol Disorder (Dependence or Abuse) in Past Six Months by Age



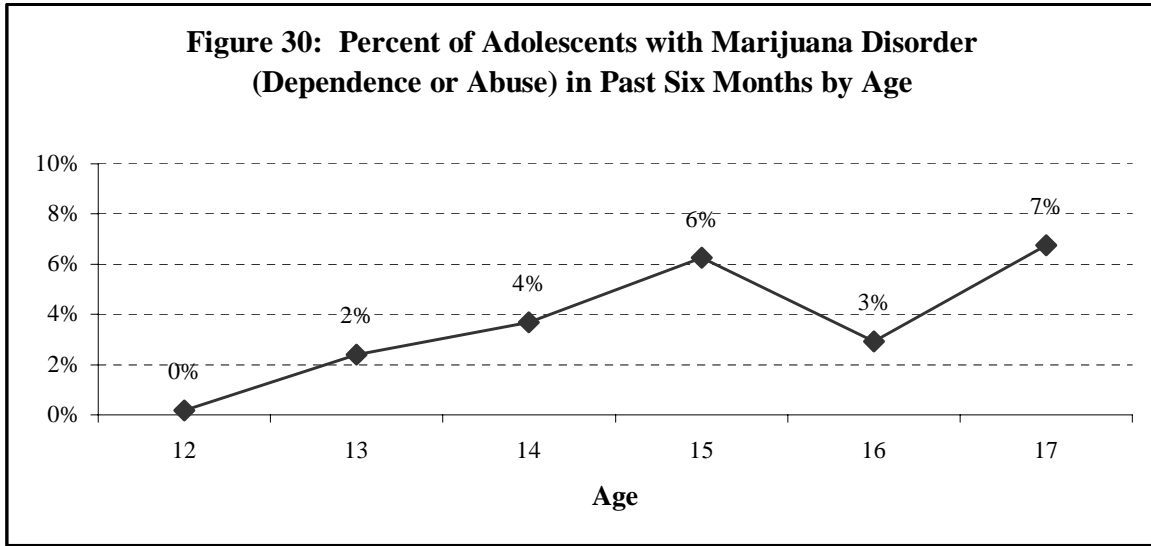
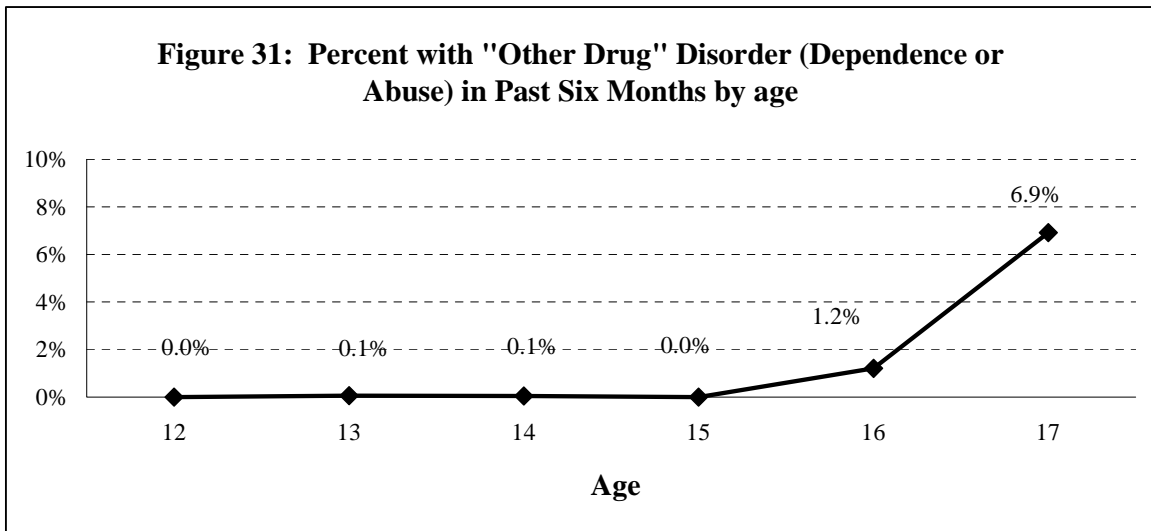


Figure 31 shows that it is very rare for adolescents younger than age sixteen to be abusing or dependent on drugs other than alcohol or marijuana. However, by age seventeen almost seven percent are dependent or abusing one of the “other” drugs.

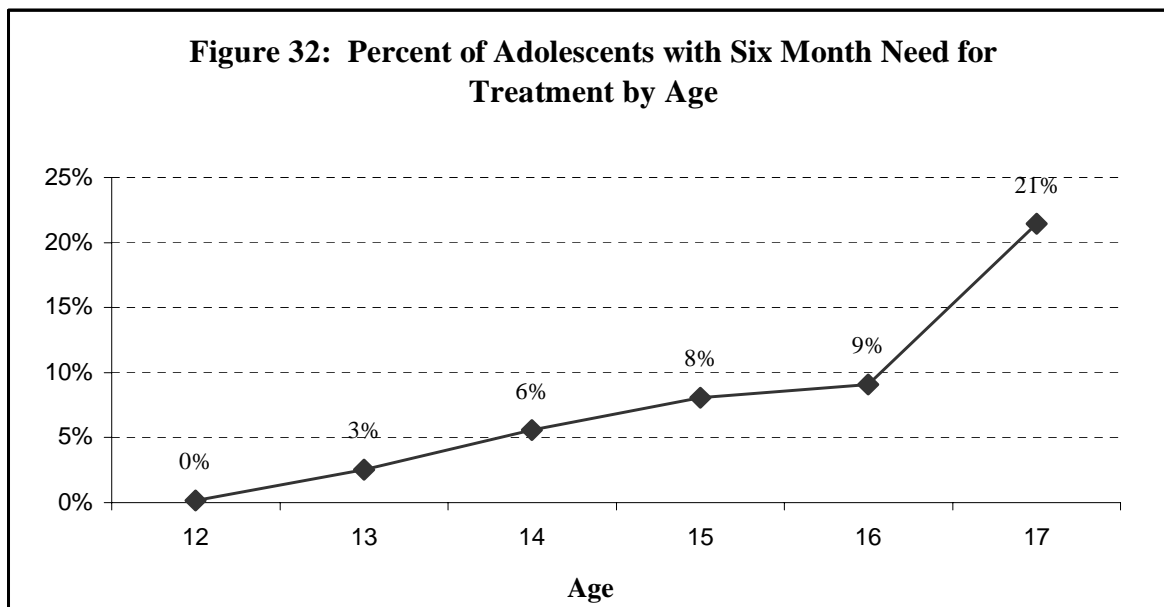


Six Month Need for Treatment

An adolescent is considered to have a 'six month need for treatment' if he or she:

1. Meets DSM III-R criteria for being dependent on or abusing alcohol or other drugs during the past six months; OR
2. Said they needed treatment, AND
 - a. Used drugs or alcohol frequently and in large amounts in the last six months; OR
 - b. Received treatment in the last six months.

About 8 percent of adolescents have a six month need for treatment'. The percent rises to 21 percent – more than one in five – of the seventeen year olds.



Twelve Month Need for Treatment

The Adolescent Household Survey collected information on substance use and DSM-III-R symptoms occurring in the 6 months prior to the survey, following the approach taken in the Diagnostic Interview Schedule for Children. This information was used in the preceding sections to directly calculate *six month* rates of dependence, abuse, and the need for treatment.

It is also useful to know the prevalence of the need for treatment over the past 12 months, a time horizon that is often used for planning purposes. We used information from the Washington Needs Assessment Household Survey 1993-94 (WANAHS) to calculate an adjustment factor to estimate the 12 month need for treatment rate from the 6 month rate

directly measured in the Adolescent Household Survey data. Because WANAHS asked open-ended questions about the timing of DSM-III-R symptoms, data from this survey could be used to estimate the number of persons needing alcohol or drug treatment over different time horizons.

Using WANAHS data for young adults (age 18-21), we found that the 12-month need for treatment rate was higher than the six month treatment rate by a factor of 1.12. Applying this factor to the six month need for treatment rate of 7.74 percent observed in Adolescent Household Survey data, we estimate the 12 month adolescent need for treatment rate to be 8.67 percent.⁶

⁶ Appendix Two describes in more detail the method used to estimate the 12 month need for treatment rate.

CHAPTER SIX

Comparing Need and Use of Treatment, and Estimates of ‘Need for Treatment’ by County

The estimated 12 month ‘Need for Treatment’ for adolescents in Washington State is 8.67 percent. In 1999, that proportion represents 43,216 adolescents.

Of those adolescents needing treatment, almost half (21,438 youth), are estimated to be eligible for full or partial DASA funding for substance abuse treatment, based on their household income, household size, and health insurance status.

- During State Fiscal Year 1999, DASA served 4,557 clients under the age of 18 living in households.
- About one in five (21 percent) of adolescents who needed DASA treatment actually received it. (4,557 adolescent clients served /21,438 in need).

These young people need and deserve more service than this.

County Level Estimates of Need for Treatment

Synthetic estimation was used to derive county level estimates of the need for treatment from the statewide survey. First, a population matrix was constructed with counts of adolescents in groups defined by age, sex, poverty status (above or below 200% of the Federal Poverty Level), and geography (ZIP code of residence). ZIP codes were further classified as east or west of the Cascade mountains, high or low density (above or below 3000 residents per square mile), and high or low on a composite measure of “community risk” indicators.⁷ The population groups were developed from 1990 U. S. decennial census data and updated with 1998 estimates for age, sex, and poverty, by ZIP code.

Next, a logistic regression model was used to estimate the six month need for treatment rate for each cell in the adolescent population matrix. These rates were then applied to each county’s demographic characteristics to produce a county level six month need for treatment rate. Finally, the 12 month adjustment factor (described in the last chapter and Appendix Two) was applied to each county’s six month rate to produce the estimated 12 month need for treatment rate. Figure 33 reports the 12 month rate for each county in Washington State.

Differences between counties in estimated rates of need for treatment result from the demography of the county. For example, counties with higher proportions of older adolescents will have higher rates of estimated need for treatment than counties with lower proportions of older adolescents, because older adolescents are more likely to be using substances.

⁷ The sampling process for this survey stratified by east/west, population density, and a composite risk index. The risk index included poverty, employment status, and education.

**Figure 33: Estimated 12 Month Need for Treatment Rate by County
State Fiscal Year 1999**

County	Adolescent Population	Percentage of Adolescents Estimated to be in Need of Treatment	Number of Adolescents Estimated to be in Need of Treatment
Adams	1,951	5.7%	111
Asotin	1,957	5.4%	105
Benton	14,233	7.5%	1,072
Chelan	5,659	5.4%	306
Clallam	5,545	9.5%	529
Clark	31,166	9.0%	2,815
Columbia	427	6.1%	26
Cowlitz	8,417	10.8%	913
Douglas	3,068	5.6%	171
Ferry	748	6.1%	46
Franklin	4,993	5.3%	264
Garfield	295	6.1%	18
Grant	7,217	6.8%	491
Grays Harbor	6,314	10.8%	685
Island	6,193	7.7%	475
Jefferson	2,128	9.1%	194
King	129,179	8.7%	11,267
Kitsap	20,652	8.1%	1,672
Kittitas	3,186	6.8%	217
Klickitat	1,981	7.1%	140
Lewis	6,836	10.4%	709
Lincoln	1,103	5.7%	63
Mason	4,370	11.1%	485
Okanogan	3,907	6.6%	256
Pacific	1,706	9.8%	167
Pend Oreille	1,176	8.2%	96
Pierce	59,364	9.9%	5,849
San Juan	1,001	9.2%	92
Skagit	8,576	8.0%	689
Skamania	1,006	11.2%	113
Snohomish	51,169	8.3%	4,266
Spokane	36,863	9.1%	3,360
Stevens	4,420	7.1%	315
Thurston	18,373	8.9%	1,632
Wahkiakum	366	8.5%	31
Walla Walla	4,846	5.9%	287
Whatcom	14,789	9.2%	1,366
Whitman	3,918	4.7%	185
Yakima	20,390	8.5%	1,742
Statewide	499,485	8.7%	43,216

APPENDIX ONE

Cooperation and Response Rate Analysis⁸

The **Cooperation Rate** for the eligible households was 64%. This is determined by the following formula:

- $(CM+PC)/(CM+PC+RF)$, where;
- CM = number of completed interviews
- PC = number of partially completed interviews
- RF = number of refusals.

The total number of eligible households was 2,042. The number of households where an adolescent was living and there was a completed or partially completed interview was 1,300. There were 742 households where either the legal guardian refused consent or the adolescent refused to assent to the interview.

The **Completion Rate** for the all eligible households was 58 percent. This rate is the ratio of completed interviews to the total number of potential respondents. This is determined by the following formula:

- $(CM+PC)/(CM+PC+RF+UI+UR)$, where;
- CM = number of completed interviews
- PC = number of partially completed interviews
- RF = number of refusals
- UI = number unable to interview
- UR = number unable to reach.

Again, there were 1,300 households where there was a completed or partially completed interview and there were 742 households that refused to participate in the interview. There were 207 households where the Social and Economic Survey Research Center, after obtaining consent, was either unable to contact the adolescent for the interview or where they were unable to reach the household.

⁸ Information for this section is found in DSHS Adolescent Substance Abuse Prevalence Project: Household Survey, Data Report 99-17: Volume 1, Social and Economic Sciences Research Center, Washington State University, 1999.

APPENDIX TWO

Method To Estimate 12 Month Need for Treatment Rate

Calculation of 12 Month Rate:

6 month adolescent need for treatment need rate = 7.74%

Adjustment factor = 1.12

Estimated 12 month adolescent need for treatment need rate = 7.74% x 1.12 = 8.67%

Calculation of Adjustment Factor:

Adjustment factor = 24.3%/21.7% = 1.12

Where:

24.3% = 18 month prevalence of DSM-III-R substance dependence or abuse, measured among 18-21 year old adults using WANAHS data

21.7% = 6 month prevalence of substance dependence or abuse, measured among 18-21 year old adults using WANAHS data

Source data for adjustment: Washington Needs Assessment Household Survey 1993-94 (WANAHS) data for adults aged 18-21.

Note: An 18 month dependence or abuse diagnosis indicates a probable need for treatment in the past 12 months. This method is approximately equivalent to using the 12-month/6-month treatment need ratio for young adults to adjust from a 6 month to a 12 month treatment need rate for adolescents.

APPENDIX THREE:

**HOUSEHOLD SURVEY FOR
ADOLESCENTS**

Final Version 4

Substance Abuse Prevalence Project

Research and Data Analysis Division
Department of Social and Health Services
Olympia, Washington 98504-5204

February 1, 1994
Modified July, 1998

A copy of this survey may be obtained at:

<http://www1.dshs.wa.gov/pdf/ms/rda/research/4/35/adolescentsurvey.pdf>

or by contacting

Washington State Alcohol/Drug Clearinghouse at
1-800-662-9111 (within Washington State) or
206-725-9696 (within Seattle or outside Washington State),
by e-mail at clearinghouse@adhl.org or by writing them at
5335 Fifth Place South
Seattle, Washington 98108-0243

CSAT
Center for Substance
Abuse Treatment

*Substance Abuse and Mental
Health Services Administration*
SAMHSA



Research and Data Analysis Division
Report Number 4.35