

## **1. Purpose, Objective, and Method**

### **PURPOSE**

The Kentucky Department of Mental Health and Mental Retardation Services, Division of Mental Health and Substance Abuse contracts with the University of Kentucky Center on Drug and Alcohol Research to survey Kentucky households on the prevalence of substance use and treatment utilization. This study meets the Federal Substance Abuse Prevention and Treatment Block Grant requirement. The purpose of this study is to provide information to state planners in estimating the overall need for substance abuse treatment in Kentucky and for treatment and prevention planning at statewide and regional levels.

### **OBJECTIVE**

The Kentucky Needs Assessment Project (KNAP) 2005 Adolescent Household Survey estimates the prevalence of substance use and abuse among adolescent Kentuckians between the ages of 12 and 17 and also estimates the percent and number of adolescents who need substance abuse treatment. Using a telephone survey of Kentucky households, this study examines the prevalence of the use of nicotine, alcohol, marijuana, cocaine, other stimulants, oxycodone, other opiates, sedatives, hallucinogens, club drugs, inhalants, and other substances used to achieve intoxication. In addition, the study develops estimates for the prevalence of alcohol and drug abuse/dependence. Respondents were asked questions related to the criteria defined in the Diagnostic and Statistical Manual, Fourth Edition Text Revision<sup>1</sup> (DSM-IV-TR) for substance abuse and dependence. In order for respondents to be classified as needing substance abuse treatment, one of four criteria had to be met:

- At least one DSM-IV-TR criterion for abuse in their lifetime
- At least three DSM-IV-TR dependence criteria in their lifetime
- A self-report of needing but not receiving treatment
- A self-reported desire to participate in treatment if services were more readily available

While these criteria support a need for interventions, they do not suggest a uniform level of treatment need. The results of this survey provide an overall estimate of adolescent treatment need.

The study also provides substance abuse prevalence estimates and treatment need estimates for four areas or regions of the state.

### **METHOD**

#### Study Design

The KNAP 2005 Adolescent Household Survey is a descriptive study of lifetime, past 12 month and past 30 day substance use, substance abuse treatment utilization and need, as well as attitudes and beliefs related to the use of drugs and alcohol.

### Principal Findings

Results of the survey indicate that an estimated 7.6%, or over 25,000, adolescents in Kentucky need substance abuse treatment which is based upon self-reported substance use and other problems. An estimated 22.0% percent of adolescent Kentuckians aged 12 to 17 have smoked a cigarette, 28.8% used alcohol, and 11.1% used an illicit drug in their lifetime. An estimated 6.3% percent of adolescents met DSM-IV-TR lifetime criteria for an alcohol use disorder and 2.8% met DSM-IV-TR criteria for a lifetime drug use disorder.

### Measures

This study examines drug and alcohol use by asking specific questions on each substance. Data analyses focused on estimating the number of Kentucky adolescents for:

- Lifetime, past 12-month, and past 30-day use of cigarette, smokeless tobacco, alcohol, and illicit drug use;
- The need for, and use of, substance abuse treatment; and
- Lifetime abuse or dependence for alcohol or other drugs.

It should be noted “illicit drugs” includes both the commonly known “street drugs” as well as drugs legally obtained by prescriptions but used outside the intended dose or purpose.

Estimates of specific substance use and related problems are presented in this report. The survey instrument can be seen in the Appendix. The tables and figures presented in this report also present data from specific question(s) the respondent was asked which are referred to in parentheses. The following section presents methodologies for surveying and estimating prevalence.

### Reliability and Validity of Telephone Interviews

The KNAP 2005 Adolescent Household Survey used phone interviews across the state of Kentucky to develop estimates of the prevalence of drug/alcohol abuse or dependence and to also estimate treatment needs. This methodology was used in the KNAP 1998 Adolescent Household Survey<sup>2</sup> as well as the KNAP Adult Household Surveys conducted in 1995, 1999, and 2004.

The main advantages of telephone surveys over face-to-face interviews are that telephone surveys have low cost, allow direct monitoring of interviewers, greater security and privacy, more efficient sampling, and easier administration.<sup>3,4</sup> Consequently, telephone surveys have become a well established method of estimating drug and alcohol use over the past two decades for state-wide, national, and international estimates.<sup>5</sup>

Overall, it has been shown that telephone interviews provide high quality data.<sup>6,7</sup> Although validity tends to be slightly lower in telephone interviews than in face-to-face

interviews, several studies have shown that telephone interviews provide good internal consistency and reliability.<sup>8</sup> For example, a study comparing phone and computer-assisted self interviews to assess HIV risk among teens found no difference between the two methods on comfort level, response bias, and truthfulness.<sup>9</sup> In addition, a veteran's longitudinal study of alcoholism diagnoses in a large national telephone survey showed strong support for the validity and reliability of assessment using the telephone.<sup>10</sup> Advances in methodology have also worked to improve the accuracy and validity of survey estimates in general, as well as for telephone interviews.<sup>4,11</sup> Telephone interviews are a widely used, cost-effective way in which to collect data, and, in general, they remain a viable method for researchers today to gather policy planning information.

### The National Survey on Drug Use and Health

The National Survey on Drug Use and Health<sup>12</sup> (NSDUH) study is a national survey which includes prevalence measures for selected drugs, substance abuse, and treatment need. Names and addresses of persons are obtained, and potential participants were sent a recruitment letter followed by a screening contact at the person's home. If criteria were met for study participation, interviewers recruited up to two persons per household for participation in a computerized interview. Interviewers entered participant responses in a laptop computer and participants answered sensitive questions by directly entering their own answers in the computer. Participants who lived in group homes, shelters, halfway houses, college dormitories, migratory workers' camps and civilians living on military bases were included as potential participants.

The 2004 NSDUH reported higher adolescent prevalence rates for drug and alcohol use as well as prevalence rates for substance abuse and dependence than this KNAP 2005 Adolescent Household Survey. There are several differences between these surveys which may account for the difference in estimates. First, the NSDUH used a face-to-face interview where selected individuals were contacted by letter, and then interviewed. The participants were then paid for their time. In the KNAP 2005 Adolescent Household Survey, participants were not contacted before their interview call, nor were they paid for their participation.

The higher prevalence rate reported in face-to-face interviews such as the NSDUH is supported by other research that has shown, in general, that individuals tend to underreport drug or alcohol use over the telephone than in face-to-face interviews.<sup>13</sup> There are several potential reasons for these differences. Face-to-face contact often allows interviewers to probe for more complete answers. In addition, the anonymity of phone interviews may free participants from feeling the obligation to be truthful.<sup>14</sup> Finally, a participant may be put more at ease about the confidentiality of their responses in a face-to-face setting.<sup>15</sup> Reporting differences between the two interview styles have usually been shown to be small to non-significant.<sup>4</sup> However, the NSDUH provided monetary compensation (\$30 per respondent) which may have increased motivation as well as providing a higher response rate.<sup>16</sup> The NSDUH survey also collected data from more than one user per household (2), thus potentially increasing the pool of at-risk subjects. The weighted interview response rate for the NSDUH (including adult

respondents) was 76% compared to the 17.1% response rate in this adolescent survey. Additionally, the number of adolescent subjects used in the 2003 NSDUH Kentucky estimates was only 325 respondents compared to the 1,607 respondents used in this report. The KNAP Adolescent Household Survey interview is based largely on the CSAT protocol. The CSAT questionnaire was developed by the Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Substance Abuse Treatment.

### Monitoring the Future

The Monitoring the Future (MTF) study is a national survey of 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> graders conducted annually from selected schools across the nation.<sup>17</sup> This cross-sectional survey includes prevalence estimates for nicotine, alcohol, and drug use. Data are gathered from about 120 to 150 public and private high schools and junior high schools across the United States based on geographic regions. Up to 350 students per grade are selected from each participating school. Questionnaires are typically administered during a scheduled class period with response rates of 82% to 89%. The subjects' parents are not consented unless explicitly required by the participating school. The study uses a "parental dissent" where consent is assumed unless the parent states otherwise.

Differences in methodologies make direct comparisons between NSDUH, MTF, and KNAP studies impractical. For example, the KNAP 2005 Adolescent Household Survey showed a decrease in lifetime smoking prevalence rates compared to the KNAP 1998 Adolescent Household Survey (See Section 9, Tables 1-4). This decrease is similar to the national decrease in lifetime prevalence noted in the 2004 MTF report. Conversely the NSDUH noted an increase in lifetime cigarette use over this same period.

### **APPROACH**

The KNAP 2005 Adolescent Household Survey methodology and approach was similar to the last KNAP Adolescent Household Survey conducted in 1998. However, the 2005 survey was administered by the Survey Research Center at Indiana University-Purdue University Indianapolis (formerly the Indiana University Public Opinion Laboratory). The Director of the Survey Research Center, James Wolf, conducted the KNAP 1998 Adolescent Household Survey while at the University of Kentucky and now conducts an identical study for the State of Indiana.

The interviews were completed by trained interviewers at the Survey Research Center from special facilities in Walker Plaza on the Indiana University-Purdue University Indianapolis campus. All interviewers received at least nine hours of general interviewer training, in addition to more than one hour of specific training on the KNAP 2005 Adolescent Household Survey. Most of the interviewers were "veteran" interviewers in the sense that they had participated in other similar survey research projects. Some have been interviewers for the Survey Research Center for more than five years.

Kentucky households in each region were contacted using random-digit dialing. This ensured that every residential phone, listed or unlisted, had an equal probability of being

selected. The interviews were designed so that equally reliable calculations could be made in each region. However, the demographic characteristics of each region are not equal. In order to compensate for this difference, standard weighting was used to more accurately depict the regional population of Kentucky.

The population of the study was defined as permanent residents of randomly selected homes who were at least 12 years old but not yet 18. Only one person per household was included. Interviewers first asked to speak with an adult in the household. At that time, they determined if any eligible respondents were currently living in the home. In situations where more than one member of the household was eligible, the respondent was randomly chosen from all eligible residents using a number randomization method available through the computer-assisted telephone interview (CATI) software. Once a respondent was chosen, the interviewer asked to speak with their parent or legal guardian to explain the study and answer any questions they might have. Once the parent or guardian gave consent, the consenting parent or guardian was asked to leave the room and not to listen in on another phone line so as to give the adolescent complete privacy, assure data quality, and the respondent's right to anonymity. Once on the phone, the respondent was informed of the study and asked if he or she agreed to participate.

All interviews were conducted from the central calling room at the Survey Research Center under supervised conditions. Supervisors monitored all interviewing activities in person, using a third "quiet line" and by computer monitoring of CATI activity. Interviewer productivity was recorded and reviewed weekly by the supervisors.

In previous surveys using this approach, the overwhelming majority of parents or guardians gave consent. If the interviewer suspected a parent, guardian, or anyone else was listening to the interview, they asked the respondent if anyone else was listening. If the respondent was not certain the conversation was being conducted in private, the interview was terminated and the data discarded.

Households in Kentucky were divided into four sampling regions: Eastern, North-Central, Western and Jefferson County. The Survey Research Center's interviewers completed screened random-digit-dial telephone interviews with 1,621 respondents. A total of 14 interviews were removed from the final data set provided to the University of Kentucky Center on Drug and Alcohol Research because interviewers judged them to be of such poor quality that they should not be included. Thus, the total interviews available are 1,607 (287 East sample, 508 North Central sample, 446 from the West sample, and 366 Jefferson County sample). Post-stratification weights were used to compensate for known biases in the samples. The maximum margin of error for the total sample was 2.5% at a 95% confidence interval. Additional error may result from issues such as question wording, respondents' inattention, pace of speech by the interviewer, and respondents' willingness to honestly answer individual items. Each of these is given special attention during the questionnaire design and data collection phases so total survey error is minimized as much as possible. However, there is no reason to believe there are major biases in these data.

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## SECTION ONE: PURPOSE, OBJECTIVE, AND METHOD

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The interviews were conducted from June 28<sup>th</sup> to September 30<sup>th</sup> 2005. Calls were made between the hours of 10:00 a.m. and 9:30 p.m. Each interviewer was given a set of answers entitled “What the Respondent Might Like to Know” which were to provide standard responses to questions raised by the people contacted for an interview. All “non-contacts” such as answering machines or no answers were reattempted at least three times.

The following table illustrates the overall call disposition for the survey:

Table 1.1: Call Dispositions

Complete	1,607
Partial	12
Refusal	6,733
Break off	6
Removed for poor quality	14
Respondent never available	294
Answering Machine	599
Deceased respondent	1
Physically or mentally unable/incompetent	46
Language	39
Unknown if housing unit	801
Always busy	34
No answer	65
Technical Phone Problems	208
Unknown if eligible Respondent	3
Out of sample	11,562
Fax/Data line	299
Non-working number	187
Disconnected number	1,957
Number changed	200
Cell phone	65
Business, government office, other organizations	229
Group quarters	9
<b>Total phone numbers used</b>	<b>24,970</b>

Following the American Association for Public Opinion Research’s Standard Definitions and using an estimate of the proportion of cases of unknown eligibility that were actually eligible, the survey achieved a cooperation rate of 19.0%, a contact rate of 90.0%, a refusal rate of 71.9%, and an overall response rate of 17.1%.

### **Weight Calculations**

The sampling strategy of this survey was to collect a parallel number of respondents from each of the sampling regions. This strategy allows for the possibility of calculating variable estimates with equal precision in each region, but would result in biased estimates for the entire state without the use of weights to correct for the sampling strategy. One region is a single county (Jefferson). It is clear that the proportion of the sample from each of the selected regions does not coincide with the proportion of the population living in those regions according to 2005 U.S. Census estimates. To correct for this sampling strategy, a sample weight was calculated.

The final sample was also found to have some disparity with population estimates for age and gender proportions. This is likely due to variations in non-response from one sampling region to another. To correct for this, age and gender were used as stratification criteria when comparing the sample characteristics of region, age, and gender to the population distribution for adolescents with the same characteristics using the 2005 U.S. Census Population Estimates.<sup>18</sup>

The entire sample was stratified into 24 strata by four regions (Eastern, Western and North Central Counties and Jefferson County), three age groups (12-13, 14-15 and 16-17) and two genders. A separate weight was calculated for each of the 24 sampling strata by multiplying the proportion of the adolescents in the population by the inverse of the proportion of the adolescents in the sample with those same strata characteristics.

Therefore:

$$SAMPWT_k = \frac{N_k}{T_{Pop}} \left( \frac{T_{Samp}}{S_k} \right)$$

Where

$SAMPWT_k$  = weight for adolescents in stratum “k”  
 $N_k$  = number of adolescents in Kentucky living in stratum “k”  
 $T_{Pop}$  = total adolescents population living in Kentucky  
 $S_k$  = number of adolescents in sample from stratum “k”  
 $T_{Samp}$  = total number of adolescents in the sample

This weight was consistently applied when analyzing data to avoid biased estimates resulting from the sample design. All data presented in this report are weighted.

### **Data Collection**

The KNAP 2005 Adolescent Household Survey generally followed the CSAT protocol in order to be comparable to the 1998 KNAP Adolescent Household Survey and other state needs assessment studies. A copy of the instrument is included as the appendix. The instrument included:

- An introduction that gave the study's purpose, statement of confidentiality, parental consent, and adolescent assent and affected random selection of an eligible respondent when more than one adolescent resided in the home;
- Demographics including date of birth, gender, race/ethnicity, educational status, and employment status;
- Lifetime, past year, and past month use of nicotine, alcohol, marijuana, cocaine and other substances;
- Questions to assess substance abuse or dependence;
- Substance abuse treatment history;
- Attitudes and beliefs regarding drug and alcohol use;
- Unmet need for treatment; and,
- Interviewer assessments of respondent attitude (suspicious, nervous, impatient), honesty of respondent and overall quality of the interview.

### **Data Analysis**

Data analyses were conducted following an estimation study design to develop detailed demographic distributions of prevalence estimates. The analyses were conducted using statistical software (SPSS v13.0). The approach used to develop these demographic distributions is summarized below.

### **Statistical Methods for Determining Prevalence Estimates**

The integrity of the dataset was initially examined. The dataset had no missing values, because all interview data were recorded electronically at the time of the interview and all items were completed. Each of the core variables was examined looking at their frequencies in terms of the appropriate demographics. For example, lifetime use of cigarettes was examined. Participants were asked if they had ever smoked a cigarette in their lifetime. These data were stratified by gender, so the percent of males who smoked in their lifetime was compared to the percent of lifetime use for females. A frequency that was stratified by age is the analysis of the variable that examined lifetime alcohol and drug use in combination. In that question, participants were asked if they had ever used alcohol and drugs in combination. The sample was initially partitioned into males and females of different ages: 12 to 13, 14 to 15, and 16 to 17 years of age. This allowed for the examination of drug and alcohol combination among the different age groups, as well as by gender.

### **Limitations**

Prevalence estimates of substance abuse and dependence and of certain drug-related behaviors and attitudes among adolescents in Kentucky that are presented in this report can be useful for policy and planning adolescent substance abuse services. However, limitations should be considered when interpreting findings. Specifically, only respondents in residential households were sampled and included. Consequently, the findings can only be generalized to adolescents residing in Kentucky households, and not to those in institutional (e.g., juvenile detention), dormitory or group home settings.

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Because it is not possible to determine the county of origin, the weighting described above included county residence using the U.S. Census.

A potential source of bias in any survey is an understatement or overstatement of reality. The validity of self-report data depends on the honesty, memory, and understanding of the respondents. While individuals generally underreport behavior that they perceive as sensitive or unacceptable, respondents may exaggerate or boast about certain behaviors. Although the protocol for this survey was designed to encourage truthfulness, some under-reporting could have occurred. Consequently, the prevalence estimates from this survey are conservative.

U.S. Census Bureau population estimates are subject to error, especially toward the end of the Census decade. Also, it should be noted that the cross-sectional nature of the data limits the capability to infer causal relationships. Despite these limitations, population based surveys are a practical method for estimating opinions, values, and behaviors.

### **ACKNOWLEDGEMENTS**

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