# Chapter 3

# STUDY DESIGN AND PROCEDURES

In the Fall of 2003, the *Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey* (*Ka Leo O Nā Keiki*) was administered to Hawaii public schools containing students in grades 6 and above. In addition, all private and charter schools servicing Hawaii students in grades 6 and above were strongly urged to participate in the study. The results presented in this report are based on student responses from 181 public schools, 41 private schools, and 7 charter schools. Systematic equal probability sampling with a random start was used to select approximately one third of the classes from each of the public schools to participate in the survey. Other survey efforts occurring at the same time necessitated sharing the public school population of students. Census sampling, on the other hand, was used when surveying private and charter school students. Only those students who received written parental consent, who voluntarily agreed to participate, and who provided usable surveys were included in the final sample. The 2003 final sample sizes were 5,579, 4,668, 4,671, 4,303, 3,793, 3,444, and 3,293 in 6th, 7th, 8th, 9th, 10th, 11th, and 12th grades, respectively. Data was weighted to improve the representativeness of the sample in terms of the size, distribution, and characteristics of the study population. The survey effort replicates and extends the work conducted by Pearson (*nee* Klingle) from 1996 to 2002 (Klingle, 2001; Klingle & Miller, 1997, 1999; Pearson, 2003), and previous efforts conducted by the *Northwest Regional Educational Laboratory* from 1987 to 1993 (Woo, Yen, & Pollard, 1994).

## SAMPLING AND COMPLETION RATE

Because of developmental changes in cognitive capacity, there appears to be a critical age at which children are particularly susceptible to environmental influences in forming beliefs and attitudes about alcohol and drugs. Although some scholars have argued that children may be influenced as early as the third grade, most agree that the critical grade is 5th or 6th (Miller, Smith, & Goldman, 1990). A survey that includes students between grades 6 and 12 should assist in planning prevention programs aimed at young students and in evaluating the treatment needs of older students. For these reasons, students in grades 6 through 12 were selected to participate in the current study. Prior to 2003, only grades 6, 8, 10, and 12 were included in the study. The 2003 survey effort was broadened to include students in grades 7, 9, and 11. However, to be consistent with previous Hawaii student alcohol and drug use studies (Klingle, 2001; Klingle & Miller, 1997, 1999; Pearson, 2003; Woo et al., 1994), and to coincide with available national results (Johnston et al., 2004), only grades 6, 8, 10, and 12 are discussed in this report. Results for all grades surveyed are made available in separate profile reports on ADAD's web site.

### *Survey Population*

The survey population consisted of all public, private, and charter schools containing students in grades 6 and above in the State of Hawaii. Table 4 on the next page provides the number of campuses in the State of Hawaii, compared to the number of campuses included in the 2003 survey effort. Nearly 100% of public schools, over one third (38%) of private schools, and over one fourth (30%) of charter schools from the survey population agreed to participate in the study. Many of the smaller private and charter schools declined to participate.

## TABLE 5
## Response Rate and Percentage of Population Represented in the 2003 Study

| | Total Population Enrollment [a] | Total Number of Students in Sample [b] | Total Number of Usable Surveys [c] | Response Rate Based on Number of Students in Sample [d] | % of Population Represented in Study [e] |
|---|---|---|---|---|---|
| **Honolulu District** | | | | | |
| 6th Grade | 2,507 | 1,176 | 957 | 81.4% | 38.2% |
| 7th Grade [f] | 2,445 | 737 | 598 | 81.1% | 24.5% |
| 8th Grade | 2,387 | 739 | 486 | 65.8% | 20.4% |
| 9th Grade | 2,988 | 945 | 406 | 43.0% | 13.6% |
| 10th Grade | 2,288 | 705 | 339 | 48.1% | 14.8% |
| 11th Grade | 2,135 | 794 | 396 | 49.9% | 18.6% |
| 12th Grade | 1,792 | 608 | 278 | 45.7% | 15.5% |
| **Central District** | | | | | |
| 6th Grade | 2,483 | 1,021 | 765 | 74.9% | 30.8% |
| 7th Grade | 2,350 | 738 | 528 | 71.5% | 22.5% |
| 8th Grade | 2,372 | 799 | 595 | 74.5% | 25.1% |
| 9th Grade | 2,712 | 808 | 463 | 57.3% | 17.1% |
| 10th Grade | 2,249 | 672 | 395 | 58.8% | 17.6% |
| 11th Grade | 2,112 | 736 | 404 | 54.9% | 19.1% |
| 12th Grade | 1,768 | 760 | 476 | 62.6% | 26.9% |
| **Leeward District** | | | | | |
| 6th Grade | 3,192 | 1,547 | 1,166 | 75.4% | 36.5% |
| 7th Grade | 3,160 | 1,106 | 793 | 71.7% | 25.1% |
| 8th Grade | 3,203 | 954 | 571 | 59.9% | 17.8% |
| 9th Grade | 3,503 | 1,077 | 496 | 46.1% | 14.2% |
| 10th Grade | 2,663 | 878 | 483 | 55.0% | 18.1% |
| 11th Grade | 2,266 | 652 | 348 | 53.4% | 15.4% |
| 12th Grade | 1,934 | 577 | 318 | 55.1% | 16.4% |

(Table continued on next page)

## TABLE 5 (continued)
## Response Rate and Percentage of the Population Represented in the 2003 Study

| | Total Population Enrollment [a] | Total Number of Students in Sample [b] | Total Number of Usable Surveys [c] | Response Rate Based on Number of Students in Sample [d] | % of Population Represented in Study [e] |
|---|---|---|---|---|---|
| **Windward District** | | | | | |
| 6th Grade | 1,343 | 650 | 480 | 73.9% | 35.7% |
| 7th Grade | 1,284 | 397 | 207 | 52.1% | 16.1% |
| 8th Grade | 1,207 | 459 | 282 | 61.4% | 23.4% |
| 9th Grade | 1,400 | 405 | 167 | 41.2% | 11.9% |
| 10th Grade | 1,187 | 443 | 236 | 53.3% | 19.9% |
| 11th Grade | 1,198 | 378 | 221 | 58.5% | 18.5% |
| 12th Grade | 968 | 275 | 163 | 59.3% | 16.8% |
| **Hawaii District** | | | | | |
| 6th Grade | 1,762 | 607 | 443 | 73.0% | 25.1% |
| 7th Grade | 1,832 | 689 | 371 | 53.9% | 20.3% |
| 8th Grade | 1,776 | 482 | 271 | 56.2% | 15.3% |
| 9th Grade | 2,063 | 796 | 410 | 51.5% | 19.9% |
| 10th Grade | 1,866 | 616 | 341 | 55.4% | 18.3% |
| 11th Grade | 1,853 | 484 | 258 | 53.3% | 13.9% |
| 12th Grade | 1,582 | 515 | 281 | 54.6% | 17.8% |
| **Kauai District** | | | | | |
| 6th Grade | 768 | 386 | 289 | 74.9% | 37.6% |
| 7th Grade | 828 | 223 | 194 | 87.0% | 23.4% |
| 8th Grade | 811 | 269 | 211 | 78.4% | 26.0% |
| 9th Grade | 898 | 288 | 154 | 53.5% | 17.2% |
| 10th Grade | 842 | 309 | 175 | 56.6% | 20.8% |
| 11th Grade | 792 | 228 | 65 | 28.5% | 8.2% |
| 12th Grade | 693 | 243 | 115 | 47.3% | 16.6% |

(Table continued on next page)

## TABLE 5 (continued)
## Response Rate and Percentage of the Population Represented in the 2003 Study

| | Total Population Enrollment [a] | Total Number of Students in Sample [b] | Total Number of Usable Surveys [c] | Response Rate Based on Number of Students in Sample [d] | % of Population Represented in Study [e] |
|---|---|---|---|---|---|
| **Maui District** | | | | | |
| 6th Grade | 1,478 | 476 | 328 | 68.9% | 22.2% |
| 7th Grade | 1,538 | 584 | 408 | 69.9% | 26.5% |
| 8th Grade | 1,663 | 529 | 366 | 69.2% | 22.0% |
| 9th Grade | 1,822 | 604 | 303 | 50.2% | 16.6% |
| 10th Grade | 1,567 | 410 | 178 | 43.4% | 11.4% |
| 11th Grade | 1,607 | 535 | 303 | 56.6% | 18.9% |
| 12th Grade | 1,301 | 535 | 317 | 59.3% | 24.4% |
| **Private/Charter Schools [g]** | | | | | |
| 6th Grade | 3,116 | 1,438 | 1,151 | 80.0% | 36.9% |
| 7th Grade | 3,663 | 1,855 | 1,569 | 84.6% | 42.8% |
| 8th Grade | 3,708 | 2,275 | 1,889 | 83.0% | 51.0% |
| 9th Grade | 3,530 | 2,185 | 1,904 | 87.1% | 53.9% |
| 10th Grade | 3,259 | 1,976 | 1,646 | 83.3% | 50.5% |
| 11th Grade | 2,809 | 1,814 | 1,449 | 79.9% | 51.6% |
| 12th Grade | 2,786 | 1,807 | 1,345 | 74.4% | 48.3% |
| **Statewide** | | | | | |
| 6th Grade | 16,649 | 7,301 | 5,579 | 76.4% | 33.5% |
| 7th Grade | 17,100 | 6,329 | 4,668 | 73.8% | 27.3% |
| 8th Grade | 17,127 | 6,506 | 4,671 | 71.8% | 27.3% |
| 9th Grade | 18,916 | 7,108 | 4,303 | 60.5% | 22.8% |
| 10th Grade | 15,921 | 6,009 | 3,793 | 63.1% | 23.8% |
| 11th Grade | 14,772 | 5,621 | 3,444 | 61.3% | 23.3% |
| 12th Grade | 12,824 | 5,320 | 3,293 | 61.9% | 25.7% |

(Footnotes are on next page)

## FOOTNOTES FOR TABLE 5

NOTES: In 2003, only a portion of the DOE school population in grades 6-12 was randomly assigned to participate in the study, whereas census sampling of grades 6, 8, 10, and 12 was done in previous years. Approximately 1/3 of the DOE population was randomly selected to participate in the 2003 study. Census sampling was used at the private school level. Data was weighted in 2003 to account for the unequal distribution of public versus private school students participating in the study.
The percentages of the statewide population included in the study over the past five years are as follows:

In 1996, 26.8% of the students in grades 6, 8, 10, and 12 statewide completed useable surveys.
In 1998, 43.8% of the students in grades 6, 8, 10, and 12 statewide completed useable surveys.
In 2000, 45.1% of the students in grades 6, 8, 10, and 12 statewide completed useable surveys.
In 2002, 44.2% of the students in grades 6, 8, 10, and 12 statewide completed useable surveys.
In 2003, 27.7% of the students in grades 6, 8, 10, and 12 statewide completed useable surveys; 26.3% of the students in grades 6-12.

In 1996, 46% of the 6th graders, 26% of the 8th graders, 18% of the 10th graders, and 14% of the 12th graders statewide participated in the study.
In 1998, 62% of the 6th graders, 45% of the 8th graders, 34% of the 10th graders, and 32% of the 12th graders statewide participated in the study.
In 2000, 60% of the 6th graders, 51% of the 8th graders, 34% of the 10th graders, and 32% of the 12th graders statewide participated in the study.
In 2002, 58% of the 6th graders, 46% of the 8th graders, 39% of the 10th graders, and 38% of the 12th graders statewide participated in the study.
In 2003, 34% of the 6th graders, 27% of the 7th graders, 27% of the 8th graders, 23% of the 9th graders, 24% of the 10th graders, 23% of the 11th graders, and 26% of the 12th graders statewide participated in the study.

(a) Total enrollments are based on enrollments in the public (DOE), private, and charter schools at the time the survey was administered. Total private school enrollments are based on enrollments for private schools associated with the Hawaii Council of Private Schools and the Hawaii Catholic Schools.

(b) In 2003, all regular public (DOE) schools containing grades 6, 7, 8, 9, 10, 11, or 12 were included in the sampling frame. All classes in a required subject or all classes meeting during a particular period of the day, depending on the school, were included in the sampling frame. Systematic equal probability sampling with a random start was used to select classes from each school that participated in the survey. The population of students was shared among three different survey projects. Each of the survey projects received approximately 1/3 of the classes from each of the middle and high schools. Classes in K-6 schools were randomly assigned to only two of the survey projects. The Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey project received approximately ½ of the K-6 classes.

(c) Students were only included in the study if they had received active parental consent to participate in the study, volunteered to participate in the study, and completed useable surveys. Approximately 1% of the of the collected survey data was considered unuseable because of students dishonesty (e.g., pattern marking, over-reporting of drug use, inconsistent answer choices).

(d) The response rate is the percentage of students in the sample who completed usable surveys. Response rate is calculated by dividing the number of students selected to be part of the sample by the number of students who provided usable survey data. The primary factor affecting response rate was parental consent. Less than 5% of the students with parental consent were excluded from the study because they choose not to fully and honestly participate.

(e) The percentage of the student population represented in the study is calculated by dividing the number of useable surveys by the total enrollment in that district and grade. The percentage reflects the proportion of the students from the district that are included in the study and is not reflective of response rate because not all students in the population were randomly assigned to participate in the study. Determining whether the sample is reflective of the population is a function of response rate (e.g., the percentage of the chosen sample represented in the report), rather than the percentage of the student population represented in the study.

(f) Results for grades 7, 9, and 11 are available in profile reports at the district, county, community, and school level. Results for these grades are not presented in this comprehensive report because there is no comparable Hawaii trend data or nationwide data for these grades.

(g) Private schools and charter schools participated on a volunteer basis and all students from the participating private and charter school were chosen as part of the sample to participate in the survey effort. The sample size was based on total school enrollment at each grade for the schools agreeing to participate.

Student participation was limited to students with parental consent who volunteered to participate and who attended school on the survey day (Statewide $N$ = 30,361; Public School $N$ = 19,140; Private School $N$ = 11,221). Consistent with previous years, several checks were built into the survey to eliminate student surveys from the final data set who were not truthful in their responses. Surveys were eliminated from the final analysis and considered unusable because of pattern marking, over-reporting of drug use, inconsistent answer choices, or marking "I was not honest" in response to the survey question assessing honesty. Approximately 2% of the surveys were discarded because of dishonesty. After eliminating the unusable surveys, the final Statewide sample was 29,751 (Public School $N$ = 18,798; Private School $N$ = 10,953). Of the students who were systematically selected to participate in the study, 67% were included in the study. Requirements to be included in the study were the following: (1) student belonged to a class that was randomly assigned to the survey project, (2) parent(s) actively consented to the student's participation, (3) the student agreed to participate in the survey, and (4) the student completed a useable survey. Response rate varied by class grade and district (see Table 5). Statewide, response rates in grades 6, 8, 10, and 12 were 76%, 72%, 63%, and 62%, respectively. Table 5, on the next page, presents information regarding total population enrollments, total number of students in the sample, total number of usable surveys, response rate, and percentage of population represented in the study. See Appendix B for information on weighting of the data and approximate weighted $n$-sizes.

## REPRESENTATIVENESS

### *Demographic Characteristics of the Survey Participants*

The characteristics of the students who took the survey are presented in Table 6 on the next page. Consistent with previous survey years, slightly more females than males were represented in the sample (Males = 48.1%; Females = 51.9%). Students were asked on the survey to indicate which ethnic group represented them the best. Students were allowed to choose more than one answer, but were asked to try to choose the one answer that best described them. The racial and ethnic groups in Hawaii were well represented in the 2003 study. Asians represented the largest racial group (47%), followed by Pacific Islanders (24%), and Whites (17%). Blacks, Hispanics, Indians or Native Alaskans each represented 3% or less of the population, and approximately 6% of the population was multi-racial. Asians primarily consisted of Filipinos (47%) and Japanese (33%), followed by Chinese (10%), Koreans (4%), Vietnamese (2%), and Other Asian (4%). Pacific Islanders were primarily Native Hawaiian (70%), followed by Other Pacific Islander (16%), and Samoan (14%).

In Hawaii, approximately 19% of 6th-grade students and approximately 21% of 8th-, 10th-, and 12th-grade students attend private or charter schools. The proportion of private/charter school students represented in the study was fairly reflective of the State of Hawaii, with 18% of the 6th-grade sample, 22% of the 8th-grade sample, 21% of the 10th-grade sample, and 22% of the 12th-grade sample coming from private/charter schools. Consistent with statewide enrollments, most of the private school students were from the City & County of Honolulu (see Table 6).

More than half of the respondents indicated that they typically received "A's" (31%) or "B's" (39%), approximately one fourth of the respondents indicated that they typically received "C's" (24%), and 7% indicated that they typically received "D's" or "F's." Refer to Table 6 for more specific breakdowns regarding the percentage of students fitting various demographic characteristics at each grade level.

## TABLE 6
## Sample Description and Background Characteristics, by Grade, 2003

(Entries are percentages %)

| Sample Characteristics | Statewide Sample | 6th Grade | 8th Grade | 10th Grade | 12th Grade |
|---|---|---|---|---|---|
| **Sex** | | | | | |
| Male | 48.1 | 49.9 | 48.1 | 44.3 | 46.9 |
| Female | 51.9 | 50.1 | 51.9 | 55.7 | 53.1 |
| **Race** | | | | | |
| Asian | 47.2 | 49.0 | 46.5 | 46.6 | 46.5 |
| *Chinese* | *9.9* | *8.8* | *9.8* | *9.3* | *11.6* |
| *Filipino* | *46.5* | *49.7* | *45.8* | *48.2* | *40.8* |
| *Indo-Chinese* | *0.3* | *0.2* | *0.3* | *0.2* | *0.2* |
| *Japanese* | *33.0* | *31.4* | *33.0* | *33.3* | *37.4* |
| *Korean* | *4.4* | *4.6* | *4.6* | *3.3* | *4.5* |
| *Vietnamese* | *1.8* | *2.0* | *1.4* | *1.8* | *1.6* |
| *Other Asian or Mixed Asian* | *4.1* | *3.3* | *5.1* | *3.9* | *3.9* |
| Black | 2.3 | 2.3 | 2.6 | 2.3 | 2.4 |
| Hispanic | 3.3 | 3.2 | 3.9 | 3.3 | 2.8 |
| Indian or Native Alaskan | 0.6 | 0.7 | 0.7 | 0.4 | 0.4 |
| Pacific Islander (PI) | 23.9 | 24.6 | 22.8 | 24.2 | 23.9 |
| *Native Hawaiian* | *69.9* | *70.8* | *71.7* | *69.4* | *68.2* |
| *Samoan* | *14.1* | *16.5* | *15.0* | *12.2* | *13.7* |
| *Other PI or Mixed PI* | *16.0* | *12.7* | *13.3* | *18.4* | *18.0* |
| White | 16.8 | 15.3 | 16.0 | 17.0 | 19.2 |
| Multi-Racial | 6.0 | 5.0 | 7.5 | 6.2 | 4.7 |
| **Typical Report Card Grades** | | | | | |
| Mostly A's | 30.5 | 31.1 | 30.4 | 28.7 | 30.4 |
| Mostly B's | 39.2 | 45.6 | 37.6 | 35.9 | 39.2 |
| Mostly C's | 23.5 | 19.3 | 25.3 | 26.2 | 24.5 |
| Mostly D's | 5.0 | 3.1 | 5.4 | 6.7 | 4.1 |
| Mostly F's | 1.8 | 0.9 | 1.3 | 2.6 | 1.8 |
| **Type of School** | | | | | |
| Public | 79.9 | 82.0 | 78.4 | 79.5 | 78.3 |
| *City & County of Honolulu* | 67.6 | 70.2 | 68.4 | 66.3 | 64.4 |
| *Hawaii County* | 14.1 | 13.1 | 13.2 | 14.7 | 15.8 |
| *Kauai County* | 12.1 | 5.7 | 6.0 | 6.6 | 6.9 |
| *Maui County* | 6.2 | 11.0 | 12.4 | 12.4 | 13.0 |
| Private/Charter | 20.1 | 18.0 | 21.7 | 20.5 | 21.7 |
| *City & County of Honolulu* | *77.6* | *70.5* | *74.5* | *78.7* | *85.0* |
| *Hawaii County* | *13.0* | *19.0* | *14.9* | *12.5* | *8.5* |
| *Kauai County* | *1.7* | *2.5* | *2.2* | *0.0* | *1.4* |
| *Maui County* | *7.7* | *8.0* | *8.4* | *8.8* | *5.2* |

NOTES: The percentages are based on weighted n-sizes. Students could pick more than one ethnic classification, but were asked to select the ethnic group(s) with which they most identified. The percentages in italics represent the proportion of students from that specific category above the italics.

### *Similarities to Previous Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey Samples*

Questions may be raised as to whether the students responding to the *2003 Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey* are similar to the students responding to the survey in previous years because the study is limited to students who received parental consent. No direct objective method for answering this question exists. Yet the issue must be addressed to help determine if the trend data in this report reflect real changes or a sample selection bias created by the parental consent restriction.

Beginning in 1993, the survey asked students to report on their likelihood of graduating from a four-year college. Nationwide results (Johnston et al., 2004) and Hawaii results (Klingle, 2001; Klingle & Miller, 1997, 1999; Pearson, 2003) have consistently found that the rate of alcohol and other drug use is substantially higher among students who do *not* expect to graduate from a four-year college than among students who do expect to graduate from a four-year college. The strong association between planning to graduate from college and substance use suggests that this question can give an indication of whether the 2003 study is under- or over-representing "at-risk" students.

Table 7 on the next page presents the percentage of students who responded "yes" to each answer regarding college aspirations in 1993, 1996, 1998, 2000, 2002, and 2003. The parental consent requirement was first enforced in 1996, so the 1993 data provides important comparison data reflecting previous survey efforts that were unrestricted by the parental consent stipulation. As seen in Table 7, the 2000, 2002, and 2003 survey sample contained fairly equal proportions of 6th- and 8th-grade students who were non-college-bound, and the proportions are slightly higher than in previous years. Thus, more 6th- and 8th-grade students who were potentially at risk for substance use may be included in the 2000, 2002, and 2003 sample than in previous years. The survey sample for 10th- and 12th-grade students in 2003, shows an increase in the proportion of non-college-bound students represented in the survey. The increase in the proportion of non-college-bound students in the survey could reflect the fact that the 2003 survey has slightly more at-risk students than previous years, or could reflect the fact that 10th and 12th graders are less sure of their college plans during the fall versus the spring semester. There is also the possibility that more students are aspiring to enter the military, without attending college. However, given that the percentages do not drastically depart from each other over the years, substance use estimates from the 2003 study are likely to represent real changes over the last few years.

## QUESTIONNAIRE FORMAT

The survey booklet, printed by *National Computer Systems (NCS)*, was an 11-page, self-contained questionnaire prepared for optical scanning (see Appendix A). The survey was based on earlier versions of the Hawaii Student Use Survey, with the addition of treatment screens first added to the Hawaii survey in 1996 and with the addition of the risk and protective items first added to the Hawaii survey in 2000. The risk and protective items were developed through a collaborative survey process involving a Six-State Consortium funded by the Center for Substance Abuse Prevention (CSAP). The goal of the consortium was to develop a set of core measures that provide scientifically sound information about the levels of risk and protection in a community. The core measures assessed risk and resiliency in four domains: community, family, school, and peer-individual. Each of the core measures was included in the survey, in addition to a few unique risk and protective factors that were measured in the *1998 Hawaii*

## TABLE 7
## Comparisons Between Study Samples from 1993 to 2003 on College Aspirations

(Entries are percentages %)

| College Aspirations | 6th Grade | | | | | | 8th Grade | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Do you think you will graduate from a four-year college?** | **1993** | **1996** | **1998** | **2000** | **2002** | **2003** | **1993** | **1996** | **1998** | **2000** | **2002** | **2003** |
| *Definitely Won't* | N/A | 2.8 | 2.8 | 3.7 | 3.1 | 3.6 | 3.3 | 3.3 | 3.2 | 2.9 | 2.8 | 3.4 |
| *Probably Won't* | N/A | 10.0 | 10.7 | 12.3 | 13.5 | 12.7 | 9.8 | 10.1 | 9.7 | 11.3 | 11.9 | 12.3 |
| *Probably Will* | N/A | 47.5 | 49.6 | 47.5 | 47.8 | 46.7 | 56.0 | 41.8 | 42.5 | 42.7 | 43.1 | 44.0 |
| *Definitely Will* | N/A | 39.7 | 36.9 | 36.5 | 35.7 | 37.0 | 30.8 | 44.6 | 44.6 | 43.1 | 42.2 | 40.2 |
| **Non-College-Bound** (definitely won't or probably won't) | N/A | 12.8 | 13.5 | 16.0 | 16.6 | 16.3 | 13.1 | 13.4 | 12.9 | 14.2 | 14.7 | 15.7 |
| **College-Bound** (definitely will or probably will) | N/A | 87.2 | 86.5 | 84.0 | 83.4 | 83.7 | 86.8 | 86.4 | 87.1 | 85.8 | 85.3 | 84.3 |

| College Aspirations | 10th Grade | | | | | | 12th Grade | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Do you think you will graduate from a four-year college?** | **1993** | **1996** | **1998** | **2000** | **2002** | **2003** | **1993** | **1996** | **1998** | **2000** | **2002** | **2003** |
| *Definitely Won't* | 3.3 | 2.5 | 2.4 | 2.9 | 2.4 | 2.7 | 4.3 | 3.4 | 2.8 | 3.4 | 3.3 | 4.9 |
| *Probably Won't* | 10.5 | 8.7 | 9.4 | 9.0 | 10.3 | 12.5 | 12.0 | 11.8 | 10.4 | 10.9 | 12.6 | 13.3 |
| *Probably Will* | 48.6 | 38.8 | 36.6 | 39.0 | 38.4 | 38.4 | 44.0 | 33.0 | 31.0 | 33.8 | 33.7 | 34.8 |
| *Definitely Will* | 37.6 | 49.9 | 51.5 | 49.1 | 48.9 | 46.4 | 39.7 | 51.8 | 55.8 | 51.9 | 50.5 | 47.0 |
| **Non-College-Bound** (definitely won't or probably won't) | 13.8 | 11.2 | 11.8 | 11.9 | 12.7 | 15.2 | 16.3 | 15.2 | 13.2 | 14.3 | 15.8 | 18.2 |
| **College-Bound** (definitely will or probably will) | 86.2 | 88.7 | 88.1 | 88.1 | 87.3 | 84.8 | 83.7 | 84.8 | 86.8 | 85.7 | 84.2 | 81.8 |

Notes: In 1993, 6th graders were not asked the question regarding whether they thought they would graduate from a four-year college. College aspirations have been shown to be a significant predictor of substance use. In the current study, Pearson correlation coefficient between college aspirations and number of drugs used in one's lifetime is -.10 for the 6th-grade sample, -.12 for the 8th-grade sample, -.18 for the 10th-grade sample, -.13 for the 12th-grade sample. All correlations are significant, $p<.0001$. Thus, as student aspirations for college increase, the number of drugs used in a student's lifetime decrease. This relationship indicates that students aspiring to attend college are less at risk for substance use. For instance, the proportion of Hawaii students in 2003 reporting to have used marijuana at least once in their lives is almost twice as high for non-college-bound Hawaii students (3% of 6th graders, 24% of 8th graders, 48% of 10th graders, 56% of 12th graders) as compared to college-bound Hawaii students (1% of 6th graders, 10% of 8th graders, 27% of 10th graders, 42% of 12th graders). Thus, comparing the percentages of students aspiring to attend college, or not, across each sample allows one to inspect whether a similar proportion of at-risk students are included in each of the samples.

*Student Alcohol and Other Drug Use Study* and that proved to be important predictor variables of substance use. Besides measuring risk and protective factors, the survey also assessed prevalence of alcohol, tobacco, and other drugs by using items that are directly comparable to items on national surveys (e.g., *Monitoring the Future*) and previous *Hawaii Student Alcohol and Other Drug Use Surveys*. Treatment needs were assessed in the survey by using questions that corresponded with the DSM-III-R criteria and that had been previously included in the *Hawaii Student Alcohol and Other Drug Use Survey* (Klingle, 2001; Klingle & Miller, 1997, 1999; Pearson, 2003). Description of specific treatment and prevention need scales are detailed in the sections "Development of Scales for Treatment Needs and Development of Risk and Protective Scales for Prevention Needs."

The survey booklet was broken into five parts. Part A of the survey gathered background information about the students. Part B of the survey gathered information related to the risk and protective factors from the school domain. Part C of the survey gathered information related to the risk and protective factors from the peer-individual domain. The antisocial behavior items, reported in Chapter 10, are also included in Part C of the survey. Part D of the survey focused on the students' experiences with alcohol, tobacco, and other drugs (ATOD). This section of the survey contained the lifetime, monthly (30-day), and daily substance use prevalence items, which are reported in Chapters 4 and 5; and onset of use items, which are reported in Chapter 7. Part D also contains questions about ability to resist ATOD offers by various people, ability to purchase alcohol and tobacco, perceptions of availability and harm associated with various substances, exposure to ATOD use, and perceptions of friends' disapproval regarding ATOD use, which are discussed in Chapters 8 and 9. Several of the items in Part D of the survey also make up risk and protective scales from the community and peer-individual domains. Part E of the survey focused on items related to the risk and protective factors from the community domain. Part F of the survey focused on items related to the risk and protective factors from the family domain. Part G of the survey addressed behavioral problems associated with drinking or using drugs (i.e., DSM-III-R items used to assess treatment needs) and perceived need for substance abuse treatment.

To assure anonymity, no identifying data were collected except the first three-digits of the student's home phone number (used to identify the community to which the student belonged), gender, school grade, and racial/ethnic background. The surveys have a coded identification number which links surveys only to a specific school, district, and county – not to an individual student. No surveys were seen by school personnel. Rather, surveys were processed by a research team that had no direct access to the students. See Appendix A for the complete survey.

Clear and simple instructions were provided on the first page of the survey booklet, and a sample question was included to assist in appropriate marking of the scannable items. Important instructions for completing the survey were repeated and highlighted in various places in the survey.

## FIELD PROCEDURES

In the fall of 2003, school liaisons were established for each school to coordinate the distribution and collection of parental consent information and to assist with the coordination of data collection. Approximately two months prior to data collection, training sessions were held with the school liaisons. Teachers administering the survey were also invited to attend the training session. The training sessions were used to distribute the materials and to clearly explain the importance of the study, the role of the school liaison, and the consent and survey proctoring procedures.

Each training session lasted approximately 45 minutes and was typically held at the high school of each school complex with, on average, six people attending a training session. During this training session, each school liaison received a training booklet that addressed everything discussed in the training session. Although each school liaison attended the training session, many of the teachers administering the survey were unable to attend. To help train teachers administering the survey, school liaisons were provided with enough training booklets for each teacher administering the survey from their school and were instructed to use the booklets to train the teachers in the same manner that they were trained by the field staff member.

To help increase consent card return rates in the elementary schools, school liaisons were notified that all elementary school teachers able to collect 80% of the consent cards from students in their classroom would be provided with a $5 Border gift card. To help increase consent card return rates in the middle and high schools, school liaisons were notified that all middle and high school teachers able to collect 70% of the consent cards from students in their classroom would be provided with a $5 Border gift card. Consent card return rates were also facilitated by providing each teacher with an easy to use typed consent-tracking roster that contained their students' names.

During the month and weeks preceding data collection, each school liaison was called by a research staff member to monitor the consent card return rates and to coordinate an administration date for the survey. The staff member also reminded the school liaison of the importance of having the teachers follow the standardized proctoring procedures when administering the survey. School liaisons received multiple calls from research staff members to make sure consent rates were as high as possible. Additional consent cards were sent out when consent rates were low. Teachers could collect consent cards up until the day the survey was administered.

Surveys were administered by a teacher during a regularly scheduled class period to all students with parental consent. Teachers followed written proctoring procedures to assure that all students received a standardized set of instructions. Teachers were instructed to explain to the students the importance of the study and how anonymity would be maintained. Students were informed that their participation in the study was completely voluntary, that they may leave any questions blank that they did not feel comfortable answering honestly, that their responses were completely anonymous, and that they should not write their names on the survey booklet. While students completed the survey, the teacher remained at the front of the room. In 6th-grade classes, where students occasionally had difficulty reading portions of the survey, teachers were allowed to read the survey questions to the students. Upon completion of the survey, students were asked to place their survey in a large envelope that was provided to each classroom. When all the students from a classroom had placed their survey in the envelope, one student was designated to seal the envelope and bring the envelope to the school liaison. Students were informed that staff from the University of Hawaii, who did not know any of the students, would be the only people allowed to open the envelope and look at the surveys.

A field staff member picked up the sealed envelopes at the designated school site and returned them to the project coordinator. Individual schools, districts, and counties were later identified for analysis purposes by a serial number that was printed on each survey booklet page.

## DEVELOPMENT OF SCALES FOR TREATMENT NEEDS

Treatment needs scales were developed based on recommendations provided by the Center for Substance Abuse and Treatment (CSAT) during the construction of the 1996 and 1998 *Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey*. CSAT recommended that adolescent treatment needs be determined based on the criteria from the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised* (DSM-III-R), which focus on the negative social and interpersonal consequences associated with using alcohol and drugs. Survey efforts prior to 1996 determined substance abuse by focusing on the frequency of substance use in the last 30 days and the amount typically consumed. Since that time, scholars (e.g., Jessor, Donovan, & Costa, 1991) have argued that quantity-frequency measures are inappropriate indicators of adolescent substance abuse and dependency. Thus, beginning in 1996, the *Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey* utilized DSM-III-R criteria to determine adolescent treatment needs in the State of Hawaii.

The DSM-III-R diagnostic criteria for alcohol and drug abuse and dependency reflect standards developed by researchers as to what patterns of behavior or physiological characteristics constitute abuse and dependency (*NIAAA*, 1995). The DSM-III-R diagnostic criteria are used to distinguish two types of diagnoses: dependence and abuse. Dependence is the most severe diagnosis and includes both physiological symptoms, such as tolerance and withdrawal, and behavioral symptoms, such as impaired control over the use of a substance (Hasin, Grant, & Endicott, 1990). Abuse is a residual category for those who don't meet the criteria of dependence but who use substances in dangerous situations or who use substances despite having physical, social, psychological, or occupational problems related to their substance use. The survey questions used in 2003 to assess each of the DSM-III-R diagnostic criteria were developed based on recommendations provided by the *National Technical Center for Substance Abuse Needs Assessment* in 1998, when treatment needs were first revised to more adequately assess treatment needs for different drug classifications. For comparison purposes, the treatment screen questions used on the 2003 survey were consistent with those used from 1998 to 2002. Although the DSM-III-R has been updated since 1998, the decision was made to continue using the DSM-III-R criteria so that trend data was not influenced by a change in survey questions.

### *Substance Dependence versus Substance Abuse*

Questions related to the nine symptoms of dependence and the two symptoms of abuse are asked for each of the following drug classifications: alcohol, marijuana, stimulants, depressants and downers, hallucinogens, and "club drugs" (ecstasy/MDMA, GHB, Rohypnol, and ketamine). Students were first instructed to answer if the symptom occurred in the last 12 months for either alcohol or drugs. If the student answered "no," the student was instructed to go to the next question (representing another symptom). If the student answered "yes," the student was instructed to answer how often the symptom occurred for each of the substance classifications in the past 12 months. Answer choices included (1) never occurred for you; (2) yes, but only once; and (3) yes, several times (more than once in a single month or several times within the last year). Dependence and abuse diagnoses are made based on the number of symptoms present and how often the symptom occurs. See Appendix A, questions 43 through 53, for the question format.

**Substance Dependence.** Substance dependence is indicated by the student's responses to nine different diagnostic criteria for dependency. These criteria include (1) using more than intended; (2) persistent desire or effort to stop use; (3) great deal of time spent using/obtaining the substance or recovering from use; (4) frequent intoxication or being high, having withdrawal symptoms when expected to fulfill major role obligations at work, school, or home, or using a substance when use is physically hazardous; (5) neglecting activities or sacrificing important activities because of substance use; (6) continued use despite knowledge of having a persistent or recurring problem caused or exacerbated by substance use; (7) marked tolerance; (8) withdrawal symptoms; and (9) use of the substance to relieve/avoid withdrawal symptoms. A student is considered dependent on a substance if he or she marks "yes" to at least three DSM-III-R criteria, and if for at least two of the criteria he or she indicated that it occurred more than once in a single month or several times within the last year.

**Substance Abuse.** Substance abuse is a residual category for diagnosing students who did not meet the criteria for dependence, but who did meet one of the following symptoms: (1) continued use of the substance despite knowledge of having a persistent or recurrent problem(s) at school, home, work, or with friends because of the substance; or (2) substance use in situations in which use is physically hazardous (e.g., drinking or using drugs when involved in activities that could have increased the student's chance of getting hurt – for instance, using a knife, climbing, swimming, or driving a vehicle). For the student to be classified as abusing a substance, at least one of the two abuse symptoms must have occurred more than once in a single month or several times within the last year. In addition, the student must *not* meet the criteria for dependence on that substance.

### *Overall Treatment Needs for Each Drug Classification*

Dependence and abuse are assessed for (1) alcohol, (2) marijuana, (3) stimulants (cocaine, speed, methamphetamine), (4) depressants or downers (sedatives, heroin), (5) hallucinogens, and (6) club drugs (ecstasy/MDMA, GHB, Rohypnol, ketamine). See Table 8 for the 11 questions reflecting each of the DSM-III-R criteria for dependence and abuse. Each question was asked for each drug category. Although the DSM-III-R criteria distinguish between dependence and abuse, students are considered in need of treatment, or at least screening for treatment, if they meet *either* of these classifications for a particular substance. The decision to encompass dependence and abuse under the umbrella of "treatment needs" was made because of the high likelihood that substance abuse by adolescents would turn into a dependency problem. Thus, if students are diagnosed as either dependent on or abusers of a particular drug classification, they are considered in need of treatment for that drug classification.

## DEVELOPMENT OF RISK AND PROTECTION SCALES FOR PREVENTION NEEDS

The *2003 Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey* measured a number of different risk and protective factors in the community, family, school, and peer-individual domains to assist in prevention planning. Risk factors are characteristics of community, family, and school environments, as well as characteristics of students and their peer groups, that are known to predict increased likelihood of drug use, delinquency, and violent behaviors among youth (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002). Protective factors exert a positive influence or buffer against the negative influences of risk, thus reducing the likelihood that adolescents will engage in problem behaviors.

## TABLE 8
## Criteria for Dependency and Abuse Based on the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised* (DSM-III-R) [a]

| *Question:* | Dependency Criteria | Abuse Symptom |
|---|---|---|
| 1. Did you ever drink more or use more drugs than you thought you would? | 1 | |
| 2. Did you ever want or try to give up drinking or using drugs but couldn't quit? | 2 | |
| 3. Have you ever spent a lot of time or energy trying to get drugs or alcohol? [b] | 3 | |
| 4. Have you ever spent a lot of time or energy recovering from the effects of drugs or alcohol? [b] | 3 | |
| 5. Have you been drunk or high on alcohol or drugs or suffered the after-effects while at school or work, or while taking care of children? [c] | 4 | 1 |
| 6. Have you ever been drinking or using drugs when involved in activities that could have increased your chance of getting hurt – for instance, using a knife, climbing, swimming, or driving a vehicle? [c] | 4 | 2 |
| 7. Has your drinking or using drugs ever caused you to give up things you liked – for instance sports, work, or spending time with friends and relatives? | 5 | |
| 8. Have you ever found that your use of alcohol or drugs caused problems for you at school, home, work, or with friends – for instance, caused you to get lower grades, fight with parents/friends, get in trouble at work, have problems concentrating, or caused you physical problems? | 6 | |
| 9. Have you ever found that you used more drugs or drank more and more without getting high or drunk? | 7 | |
| 10. When you stopped drinking or using drugs did you ever "shake," tremble, have trouble sleeping, feel anxious or depressed, or sweat? | 8 | |
| 11. Have you ever taken a drink or used drugs to get rid of a sick or uncomfortable feeling you got after stopping? | 9 | |

[a] Instructions for each question stated: "IN THE NEXT QUESTIONS, THINK ABOUT YOUR ALCOHOL AND DRUG USE IN THE PAST 12 MONTHS. MARK: *"NO"* if the situation NEVER OCCURRED FOR YOU; *"YES, BUT ONLY ONCE"* if the situation has OCCURRED ONLY ONCE FOR YOU; *"YES, SEVERAL TIMES"* if the situation occurred MORE THAN ONCE IN A SINGLE MONTH or SEVERAL TIMES WITHIN THE LAST YEAR for you. For each of the criteria shown in the table above, the student first answered "yes" or "no" to whether the symptoms occurred for either alcohol or drugs. If the student answered "yes" the symptom occurred in the past 12 months, the student was instructed to respond to answer how often it occurred for the following six substances: Alcohol, Marijuana, Stimulants (Cocaine, Methamphetamine, Speed), Depressants or Downers (Sedatives, Heroin), Hallucinogens, and Club Drugs (Ecstasy/MDMA, GHB, Rohypnol, ketamine).

[b] The third and fourth DSM-III-R dependency criteria were split into two questions to facilitate readability. Marking either or both or these items counted as only one symptom of dependency.

[c] The abuse criteria include two aspects of the DSM-III-R criteria 4 for dependency. Thus, dependency criteria 4 was split into two questions. Marking either or both of these items counts as only one symptom of dependency. Students who meet a dependency diagnosis are not classified as substance abusers regardless of their answers to these items.

## TABLE 9
## Descriptive Statistics for Risk and Protective Factors, 2003

| | Factors | Number of Items in Scale | Variable Range [a] | Mdn | M | SD | Alpha Reliability | Cutpoints for Each Grade [b] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 6th | 8th | 10th | 12th |
| Community Domain | **Risk Factors** | | | | | | | | | | |
| | Community Disorganization | 4 | 1-4 | 1.75 | 1.82 | 1.42 | .80 | 1.690 | 1.693 | 1.890 | 1.889 |
| | Transition & Mobility | 2 | 1-5 | 2.00 | 2.24 | 2.05 | .76 | 1.639 | 2.150 | 2.150 | 2.155 |
| | Exposure to Community Alcohol, Tobacco, and Drug (ATOD) Use | 3 | 1-5 | 1.33 | 1.82 | 2.05 | .77 | 1.100 | 1.135 | 1.824 | 2.166 |
| | Laws & Norms Favorable to ATOD Use | 10 | 1-5 | 2.00 | 2.20 | 1.80 | .85 | 1.702 | 2.130 | 2.633 | 3.030 |
| | Perceived Availability of Drugs & Handguns | 8 | 1-4 | 1.63 | 1.81 | 1.64 | .93 | 1.080 | 1.471 | 2.051 | 2.476 |
| | Ability to Purchase Alcohol or Tobacco | 7 | 1-2 | 1.00 | 1.03 | 0.21 | .79 | 1.008 | 1.017 | 1.021 | 1.029 |
| | **Protective Factors** | | | | | | | | | | |
| | Community Opportunities for Positive Involvement | 6 | 1-2 | 1.50 | 1.54 | 0.64 | .79 | 1.541 | 1.543 | 1.543 | 1.545 |
| | Community Rewards for Positive Involvement | 3 | 1-4 | 2.00 | 2.18 | 1.82 | .88 | 2.800 | 2.467 | 2.128 | 2.129 |
| Family Domain | **Risk Factors** | | | | | | | | | | |
| | Poor Family Supervision | 6 | 1-4 | 1.50 | 1.62 | 1.25 | .87 | 1.419 | 1.761 | 1.921 | 1.925 |
| | Lack of Parental Sanctions for Antisocial Behaviors (ASBs) | 6 | 1-3 | 1.00 | 1.19 | 0.85 | .93 | 1.082 | 1.080 | 1.068 | 1.404 |
| | Parental Attitudes Favorable Toward ATOD Use | 3 | 1-4 | 1.00 | 1.16 | 0.84 | .81 | 1.054 | 1.075 | 1.083 | 1.096 |
| | Exposure to Family ATOD Use | 6 | 1-5 | 1.33 | 1.52 | 1.23 | .68 | 1.080 | 1.265 | 1.600 | 1.604 |
| | Parental Attitudes Favorable Toward ASB | 3 | 1-4 | 1.00 | 1.20 | 0.84 | .79 | 1.066 | 1.084 | 1.079 | 1.077 |
| | Family (Sibling) History of ASB | 5 | 1-2 | 1.00 | 1.18 | 0.53 | .76 | 1.030 | 1.041 | 1.243 | 1.293 |
| | **Protective Factors** | | | | | | | | | | |
| | Family Attachment | 4 | 1-4 | 3.00 | 2.95 | 1.60 | .83 | 3.109 | 2.864 | 2.857 | 2.609 |
| | Family Opportunities for Positive Involvement | 3 | 1-4 | 3.00 | 3.07 | 1.64 | .85 | 3.445 | 3.121 | 3.116 | 3.117 |
| | Family Rewards for Positive Involvement | 4 | 1-4 | 3.00 | 3.02 | 1.44 | .79 | 3.349 | 3.109 | 2.853 | 2.854 |

NOTES: *Mdn* = Median; *M* = Mean; *SD* = Standard Deviation

(Table continued on next page)

## TABLE 9 (continued)
## Descriptive Statistics for Risk and Protective Factors, 2003

| | Factors | Number of Items in Scale | Variable Range [a] | Mdn | M | SD | Alpha Reliability | Cutpoints for Each Grade [b] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 6th | 8th | 10th | 12th |
| School Domain | **Risk Factors** | | | | | | | | | | |
| | Low School Commitment | 6 | 1-5 | 2.33 | 2.38 | 1.36 | .78 | 2.100 | 2.442 | 2.604 | 2.601 |
| | Poor Academic Performance | 2 | 1-5 | 2.50 | 2.45 | 1.90 | .64 | 2.145 | 2.154 | 2.153 | 2.145 |
| | **Protective Factors** | | | | | | | | | | |
| | School Opportunities for Positive Involvement | 5 | 1-4 | 3.00 | 2.89 | 0.97 | .61 | 3.088 | 2.890 | 2.881 | 3.079 |
| | School Rewards for Positive Involvement | 3 | 1-4 | 2.67 | 2.56 | 1.24 | .68 | 3.105 | 2.779 | 2.773 | 2.774 |
| Peer-Individual Domain | **Risk Factors** | | | | | | | | | | |
| | Early Initiation of Problem Behaviors | 9 | 0-9 | 0.56 | 1.10 | 2.86 | .80 | 0.165 | 1.019 | 1.562 | 1.546 |
| | Favorable Attitudes Toward ATOD Use | 4 | 1-4 | 1.00 | 1.40 | 1.33 | .85 | 1.059 | 1.109 | 1.373 | 1.627 |
| | Low Perceived ATOD Use Risk | 8 | 1-3 | 1.00 | 1.24 | 0.82 | .94 | 1.335 | 1.203 | 1.291 | 1.279 |
| | Antisocial Behaviors (ASBs) | 8 | 1-7 | 1.00 | 1.12 | 0.75 | .82 | 1.026 | 1.062 | 1.060 | 1.054 |
| | Favorable Attitudes Toward ASB | 5 | 1-4 | 1.20 | 1.46 | 1.19 | .85 | 1.067 | 1.103 | 1.502 | 1.495 |
| | Friends' ATOD Use | 4 | 1-5 | 1.50 | 2.12 | 2.55 | .87 | 1.088 | 1.432 | 2.701 | 3.202 |
| | Interaction with Antisocial Peers | 6 | 1-5 | 1.17 | 1.47 | 1.46 | .83 | 1.051 | 1.104 | 1.280 | 1.274 |
| | Rewards for Antisocial Involvement | 9 | 1-4 | 1.33 | 1.62 | 1.35 | .91 | 1.084 | 1.456 | 1.900 | 2.120 |
| | Rebelliousness | 3 | 1-4 | 1.67 | 1.68 | 1.33 | .79 | 1.429 | 2.108 | 2.099 | 2.097 |
| | Sensation Seeking | 3 | 1-6 | 1.67 | 1.93 | 2.26 | .83 | 1.487 | 1.866 | 2.195 | 2.521 |
| | **Protective Factors** | | | | | | | | | | |
| | Peer Disapproval of ATOD Use | 8 | 1-4 | 4.00 | 3.53 | 1.46 | .96 | 4.000 [c] | 3.995 | 3.687 | 3.532 |
| | Belief in the Moral Order | 3 | 1-4 | 3.33 | 3.19 | 1.47 | .76 | 4.000 [c] | 3.113 | 3.107 | 3.105 |
| | Educational Aspirations | 2 | 1-4 | 3.50 | 3.37 | 1.34 | .84 | 3.601 | 3.602 | 3.598 | 4.000 [c] |

[a] Rather than creating a summation score, items were summed and then averaged. This prevented missing data from impacting the risk and protective scores. Thus, the maximum and minimum scale scores are represented by the variable range.

[b] Cutpoints are based on the *2000 Hawaii Student Alcohol and Drug Use Study* data, which utilized the formula created by the Social Development Research Group (SDRG) from the University of Washington for dichotomizing the risk and protective factors. All students scoring above the cutpoint for the risk factor scales are categorized as meeting the risk criteria; all students scoring above the cutpoint for the protective factor scales are categorized as meeting the protection criteria.

[c] In three cases the median used to create the cutpoints in 2000 was equal to the highest point on the scale (i.e., peer disapproval, belief in moral disorder, and educational aspirations). In these instances, all students scoring the value of the median are categorized as protected.

## *Risk and Protective Factors*

The variables measuring each of the four domains (community, family, school, peer-individual) are described below. Several scales use the abbreviation *ATOD*, which refers to alcohol, tobacco, or other drug use. The abbreviation *ASB* is also frequently used and refers to antisocial behavior. Table 9 on the previous page provides the descriptive statistics for each scale. The majority of the variables measured in the survey were developed by the Six-State Consortium under funding by CSAP and are based on the core items recommended by CSAP.

In an effort to shorten the survey in 2003, the following five scales used in previous survey efforts were excluded from the current survey effort: Community Attachment, Family Conflict, Gang Involvement, Depression, and Religiosity. These scales were selected to be removed because they had low reliability and did not adequately discriminate substance users from non-users. All of the other scales used in the previous survey efforts were included in the 2003 survey. Variables unique to the Hawaii survey effort, any variations to the recommended CSAP core measures, and any revisions to the scales are noted below in the scale descriptions. Several scales necessitated the reversal of some items so that they corresponded with both the direction of the other scale items and the name of the scale. For the risk factors, higher numbers in the scales reflect greater risk; for the protection factors, higher numbers in the scales reflect greater protection.

**Community Domain.** Eight community domain variables were measured in the study: six risk factors (Community Disorganization, Transition & Mobility, Exposure to Community ATOD Use, Laws & Norms Favorable to ATOD Use, Perceived Availability of Drugs & Handguns, Ability to Purchase Alcohol or Tobacco) and two protective factors (Community Opportunity for Positive Involvement, Community Rewards for Positive Involvement).

Community Disorganization was captured in a 4-item, 4-point scale that measured the prevalence of crime, violence, and delinquency in the neighborhood and included the items: "There is crime and/or drug selling in my neighborhood"; "There are fights in my neighborhood"; "There are a lot of empty or abandoned buildings in my neighborhood"; and "There is a lot of graffiti (such as spray painting on walls without permission) in my neighborhood" ($\alpha$=.80). Response choices were (1) *NO! Definitely not true for you*; (2) *no, mostly not true for you*; (3) *yes, mostly true for you*; and (4) *YES! Definitely true for you*. One of the original scale items, I feel safe in my neighborhood, was excluded from the 2003 survey.

The Transition & Mobility risk factor was determined through a 2-item, 5-point scale that asked the student to respond to the following two questions: "Since kindergarten, how many times have you moved to a new house or apartment?" and "Since kindergarten, how many times have you changed schools?" ($\alpha$=.76). Response choices were (1) *Never*, (2) *1 or 2 times*, (3) *3 or 4 times*, (4) *5 or 6 times*, and (5) *7 or more times*.

Exposure to Community ATOD Use was measured through a 3-item, 5-point scale that asked students how often, during the last 12 months, they had been exposed to people in their neighborhood or school who were using cigarettes, using alcohol, and using illegal drugs ($\alpha$=.77). Response choices were (1) *Not at all*, (2) *A few times a year*, (3) *Once or twice a month*, (4) *At least once a week*, and (5) *Almost every day*. This scale is not one of the proposed CSAP risk factors, but proved to be highly associated with substance use in the *1998, 2000, and 2002 Hawaii Student Alcohol and Other Drug Use Study*.

The Laws & Norms Favorable to ATOD Use risk factor was measured with a 10-item, 5-point scale that asked students about the attitudes and policies a community holds about drug use and crime (α=.85). Two sets of questions were used for this scale. The first set of questions asked students to respond to the following six items: "Adults in my neighborhood would think it was wrong for kids my age to use marijuana"; "Adults in my neighborhood would think it was wrong for kids my age to drink alcohol"; "Adults in my neighborhood would think it was wrong for kids my age to smoke cigarettes"; "If a kid drank alcohol in my neighborhood, he or she would be caught by the police"; "If a kid smoked marijuana in my neighborhood, he or she would be caught by the police"; "If a kid carried a handgun in my neighborhood, he or she would be caught by the police." Four response choices were provided and were coded as a 5-point scale to be consistent with the second set of questions (1=*NO! Definitely not true for you*; 2=*no, mostly not true for you*; 4=*yes, mostly true for you*; and 5=*YES! Definitely true for you*). The second set of questions asked students to indicate how many adults (18 or older) they have known personally who in the past year have: used marijuana, crack, cocaine, or other illegal drugs; sold or dealt drugs; done other things that could get them in trouble with the police like stealing, selling stolen goods, or beating up others; and gotten drunk or high. Response choices were (1) *none*, (2) *1 adult*, (3) *2 adults*, (4) *3 or 4 adults*, and (5) *5 or more adults*.

Perceived Availability of Drugs & Handguns was assessed with an 8-item, 4-point scale that asked students how difficult it would be for them to get various substances and handguns if they wanted some (α=.93). Students were asked how difficult it would be for them to get each of the following if they wanted some: cigarettes; alcohol (beer, wine, or hard liquor); marijuana; cocaine; methamphetamine, hallucinogens; ecstasy or other club drugs; and handguns. Response choices were (1) *very difficult*, (2) *fairly difficult*, (3) *fairly easy*, and (4) *very easy*.

In 2000, the "Perceived Availability of Drugs & Handguns" scale was a 14-item scale that included the following additional items: smokeless tobacco, heroin or other opiates, sedatives, tranquilizers, and steroids. Additionally, the 2000 scale used two separate questions for alcohol availability (i.e., beer or wine availability and hard liquor availability), rather than one question. The scale became an 8-item scale in 2002 to shorten the survey.

Ability to Purchase Alcohol or Tobacco was assessed through a 7-item, dichotomous scale (1=*no*; 2=*yes*) that asked students if they ever purchased alcohol from an employee at a store, bar, or restaurant and if they ever purchased tobacco from a vending machine, employee at a store, bar, or restaurant (α=.79). This scale is not one of the proposed CSAP risk factors, but proved to be highly associated with substance use in the *1998, 2000, and 2002 Hawaii Student Alcohol and Other Drug Use Studies* and is a more direct assessment of actual availability of substances.

The Community Opportunities for Positive Involvement factor was indexed with a 6-item dichotomous scale (1=*no* or *I don't know*; 2=*yes*) that asked students if various activities were available to them in their community (α=.79). Students were asked which of the following activities are available in their community for people their age: organized sports outside of school (e.g., soccer, paddling, baseball); individual sporting facilities (e.g., rollerblading/skateboarding parks, batting cages); boy scouts or girl scouts; boys' and girls' clubs; 4-H club or other organized agricultural, ranch, or farm type clubs; and music, dance, or other performance arts groups (e.g., hula, theater groups).

The Community Rewards for Positive Involvement protective factor was measured through a 3-item, 4-point scale that asked if the community encouraged adolescents to engage in positive activities (α=.88). Students responded to the following items: "My neighbors notice when I am doing a good job and let me know it"; "There are people in my neighborhood who encourage me to do my best"; and "There are people in my neighborhood who are proud of me when I do something well." Response choices were (1) *NO! Definitely not true for you*; (2) *no, mostly not true for you*; (3) *yes, mostly true for you*; and (4) *YES! Definitely true for you*.

**Family Domain.** Nine family domain variables were measured in the study: six risk factors (Poor Family Supervision, Lack of Parental Sanctions for ASBs, Parental Attitudes Favorable Toward ATOD Use, Exposure to Family ATOD Use, Parental Attitudes Favorable Toward ASB, Family History of ASB) and three protective factors (Family Attachment, Family Opportunities for Positive Involvement, Family Rewards for Positive Involvement).

Poor Family Supervision was measured through a 6-item, 4-point scale that assessed parents' failure to monitor their children (α=.87). Students responded to the following six items: "My parents ask me if I've gotten my homework done"; "When I am not at home, one of my parents knows where I am and who I am with"; "My parents would know if I didn't come home on time"; "My parents want me to call if I'm going to be late getting home"; "The rules in my family are clear"; and "My family has clear rules about alcohol and drug use." Response choices were (1) *YES! Definitely true for you*; (2) *yes, mostly true for you*; (3) *no, mostly not true for you*; and (4) *NO! Definitely not true for you.*

Lack of Parental Sanctions for ASBs was measured through a 6-item, 3-point scale that asked students if they would be in trouble if their parents caught them smoking cigarettes, drinking alcohol, smoking marijuana, using other illegal drugs, skipping school, or carrying a handgun to school or other public places (α=.93). The questions used the following response foils, which were reversed so that the higher number represented a lack of parental sanctions: (1) *No, not really*; (2) *Yes, a little*; and (3) *Yes, a lot.*

The "Lack of Parental Sanctions for ASBs" scale replaced the recommended CSAP core measurement scale of "Poor Family Discipline." "Lack of Parental Sanctions for ASBs" was used in previous Hawaii survey efforts and is conceptually the same as the CSAP core measurement. The "Lack of Parental Sanctions for ASBs" scale was more reliable than CSAP's "Poor Family Discipline" scale and was one of the strongest predictors of substance use previous Hawaii survey efforts.

The Parental Attitudes Favorable Toward ATOD Use risk factor was assessed through a 3-item, 4-point scale that asked students how wrong they think their parents feel it would be for them to drink alcohol regularly, smoke cigarettes, and smoke marijuana (α=.81). Response choices were (1) *very wrong*, (2) *wrong*, (3) *a little bit wrong*, and (4) *not at all wrong*.

Exposure to Family ATOD Use was based on a 6-item, 5-point scale that indexed the degree of exposure students had to ATOD use by parents and siblings (α=.68). Students were asked how often they have been around their parents and how often they have been around their brothers and sisters when these family members were using tobacco, alcohol, and other illegal drugs. Response choices were (1) *Not at all*, (2) *A few times a year*, (3) *Once or twice a month*, (4) *At least once a week*, and (5) *Almost every day*. The "Exposure to Family ATOD Use" scale is not one of the core CSAP risk factors, but proved to be highly associated with substance use in previous Hawaii survey efforts.

The Parental Attitudes Favorable Toward Antisocial Behaviors (ASB) risk factor was measured by asking students how wrong they think their parents feel it would be for them to steal anything worth more than $5, draw graffiti on buildings, and pick a fight with someone (α=.79). Response choices for the 3-item, 4-point scale were (1) *very wrong*, (2) *wrong*, (3) *a little bit wrong*, and (4) *not at all wrong*.

Family (Sibling) History of ASB was based on a 5-item, dichotomous scale (1=*no*; 2=*yes*) that asked students if they have any brothers or sisters who have ever drunk beer, wine, or hard liquor; smoked marijuana; smoked cigarettes; taken a handgun to school; or been suspended or expelled from school (α=.76).

Family Attachment assessed whether students felt connected to and loved by their family through the following questions: "I feel very close to my mother"; "I share my thoughts and feelings with my mother"; "I feel very close to my father"; and "I share my thoughts and feelings with my father" (α=.83). Response choices for the 4-item, 4-point scale were (1) *NO! Definitely not true for you*; (2) *no, mostly not true for you*; (3) *yes, mostly true for you*; and (4) *YES! Definitely true for you*.

The Family Opportunities for Positive Involvement protective factor was measured using a 3-item, 4-point scale that asked students to respond to the following items: "My parents give me a lot of chances to do fun things with them"; "My parents ask what I think when making decisions that affect me"; and "If I had a personal problem, I could ask my mom or dad for help" (α=.85). Response choices were (1) *NO! Definitely not true for you*; (2) *no, mostly not true for you*; (3) *yes, mostly true for you*; and (4) *YES! Definitely true for you*.

The Family Rewards for Positive Involvement protective factor was measured using a 4-item, 4-point scale that asked students about their positive experiences with parental figures (α=.79). The two items in the scale, "I enjoy spending time with my mother" and "I enjoy spending time with my father," used the response choices: (1) *NO! Definitely not true for you*; (2) *no, mostly not true for you*; (3) *yes, mostly true for you*; and (4) *YES! Definitely true for you*. The other two items in the scale ("How often do your parents tell you that you are doing a good job?" and "How often do your parents tell you they're proud of you for something you've done?") used the response choices: (1) *Never or almost never*, (2) *Sometimes*, (3) *Often*, and (4) *All the time*.

**School Domain.** Four school domain variables were measured in the study: two risk factors (Low School Commitment, Poor Academic Performance) and two protective factors (School Opportunities for Positive Involvement, School Rewards for Positive Involvement).

Low School Commitment was measured using a 6-item, 5-point scale that addressed whether students were unable to see their role of a student as a viable one (α=.78). Two sets of questions were used for this scale. The first set included two questions: "How interesting are most of your classes to you?" and "How important do you think things you are learning in school are going to be for you later in life?" Response choices for the first question were (1) *very interesting*, (2) *quite interesting*, (3) *fairly interesting*, (4) *slightly dull*, and (5) *very dull*. Response choices for the second question were (1) *very important*, (2) *quite important*, (3) *fairly important*, (4) *slightly important*, and (5) *not at all important*. The second set of questions asked students to think back over the past school year and respond to the following items: "How often do you feel the school work you were assigned was meaningful and important?" "How often do you enjoy being in school?" "How often do you hate being in school?" and

"How often do you try to do your best in school?" The following four response choices were provided with the items recoded to reflect a 5-point scale: (1) *almost always*, (2) *often*, (4) *sometimes*, and (5) *seldom*. All scale items were coded so that high numbers reflected low school commitment.

Poor Academic Performance was defined as poor school performance and was assessed through a 2-item scale (α=.64). The first question asked students: "Putting them all together, what were your grades like on your last report card?" Response choices were (1) *Mostly A's*, (2) *Mostly B's*, (3) *Mostly C's*, (4) *Mostly D's*, and (5) *Mostly F's*. The second question had students respond to the following item: "My school grades are better than the grades of most students in my class." Response choices were (1) *YES! Definitely true for you*; (2) *yes, mostly true for you*; (3) *no, mostly not true for you*; and (4) *NO! Definitely not true for you* and were recoded so that high numbers reflected poor academic performance.

The School Opportunities for Positive Involvement protective factor was assessed through a 5-item, 4-point scale that asked students if there were opportunities in their school to become involved in school activities (α=.61). The five items were: "In my school, students have a lot of chances to help decide things like class activities and rules"; "There are a lot of chances for students in my school to talk with a teacher one-on-one"; "Teachers ask me to work on special classroom projects"; "There are a lot of chances for students in my school to get involved in sports, clubs, and other school activities outside of class"; and "I have a lot of chances to be part of class discussions or activities." Response choices were (1) *NO! Definitely not true for you*; (2) *no, mostly not true for you*; (3) *yes, mostly true for you*; and (4) *YES! Definitely true for you*.

School Rewards for Positive Involvement measured whether students received positive feedback by school personnel for doing good work with a 3-item, 4-point scale (α=.68). The three items were: "My teachers praise me when I work hard in school"; "The school lets my parents know when I have done something well"; and "My teacher(s) notice(s) when I am doing a good job and let(s) me know about it." Response choices were (1) *NO! Definitely not true for you*; (2) *no, mostly not true for you*; (3) *yes, mostly true for you*; and (4) *YES! Definitely true for you*.

**Peer-Individual Domain.** Thirteen peer-individual domain variables were measured in the study: Ten risk factors (Early Initiation of Problem Behaviors, Favorable Attitudes Toward ATOD Use, Low Perceived Risk of ATOD Use, Antisocial Behaviors, Favorable Attitudes Toward ASB, Friends' ATOD Use, Interaction with Antisocial Peers, Rewards for Antisocial Involvement, Rebelliousness, and Sensation Seeking) and three protective factors (Peer Disapproval of ATOD Use, Belief in the Moral Order, and Educational Aspirations).

Early Initiation of Problem Behaviors was a 9-item, 10-point scale that asked students how old they were when they first did the following: smoked your first cigarette; tried alcohol (beer or wine – more than just a few sips, or hard liquor); drank enough to get drunk; drank alcohol regularly (at least once or twice a month); tried marijuana; got suspended or expelled from school; got arrested; carried a handgun; and attacked someone with the idea of seriously hurting them (α=.80). Response choices were (0) *Never*, (1) *17 years or older*, (2) *16 years*, (3) *15 years*, (4) *14 years*, (5) *13 years*, (6) *12 years*, (7) *11 years*, (8) *10 years*, and (9) *9 years or younger*.

The Favorable Attitudes Toward ATOD Use risk factor was assessed with a 4-item, 4-point scale that asked students how wrong they thought it was for someone their age to drink alcohol regularly, smoke cigarettes, smoke marijuana, and use other illegal drugs (α=.85). Response choices were (1) *very wrong*, (2) *wrong*, (3) *a little bit wrong*, and (4) *not at all wrong*.

Low Perceived ATOD Use Risk measured perceived harmfulness associated with using alcohol, tobacco, or other drugs through an 8-item, 3-point scale (α=.94). Students were asked how much people harm themselves if they engage in the following behaviors: have five or more drinks of alcohol once or twice each weekend, smoke one or more packs of cigarettes a day, use marijuana occasionally, use inhalants to get high occasionally, use cocaine occasionally, use methamphetamine occasionally, use hallucinogens occasionally, and use ecstasy or other club drugs occasionally. Response choices were (1) *a lot of harm*, (2) *some harm*, and (3) *no harm*.

In 2000, the "Low Perceived ATOD Use Risk" scale was a 9-item scale that asked more questions assessing perceived risk associated with using different amounts of a substance (i.e., using marijuana, once or twice vs. using marijuana occasionally vs. using marijuana regularly; and using cocaine once or twice vs. using cocaine occasionally). The 2000 scale excluded the questions that asked about harm associated with occasionally using hallucinogens and using ecstasy or other club drugs. The most significant difference between the 2000 scale and the scale used in 2002 and 2003 was the response choices. The response choices in 2000 were (1) *a lot of risk*, (2) *some risk*, and (3) *no risk*. The response choices in 2002 and 2003 were (1) *a lot of harm*, (2) *some harm*, and (3) *no harm*.

The changes to the "Low Perceived ATOD Use Risk" scale in 2000 were necessary to shorten the survey and to improve respondents' understanding of the questions. Additionally, the changes were necessary to ascertain perceived harmfulness beliefs associated with more prevalent substances, such as ecstasy. Over the years, students have consistently asked questions regarding the meaning of "risk." Replacing "risk" with "harm" helped students to more easily respond to the question.

The Antisocial Behaviors (ASBs) risk factor was an 8-item, 7-point scale that asked students how many times they have exhibited the following behaviors in the past year or 12 months: been suspended from school, carried a handgun, sold illegal drugs, stolen or tried to steal a motor vehicle, been arrested, attacked someone with the idea of seriously hurting them, been drunk or high at school, and taken a handgun to school (α=.82). Response choices were (1) *never*, (2) *1 or 2 times*, (3) *3 to 5 times*, (4) *6 to 9 times*, (5) *10 to 19 times*, (6) *20 to 29 times*, and (7) *30+ times*.

The Favorable Attitudes Toward ASB risk factor was measured using a 5-item, 4-point scale that asked students how wrong they think it would be for someone their age to take a handgun to school, steal anything worth more than $5, pick a fight with someone, attack someone with the idea of seriously hurting them, and stay away from school all day when your parents think you are at school (α=.85). Response choices were (1) *very wrong*, (2) *wrong*, (3) *a little bit wrong*, and (4) *not at all wrong*.

Friends' ATOD Use assessed how many best friends the student had who used alcohol, tobacco, and drugs. The 4-item, 5-point scale asked how many of their best friends have exhibited the following behaviors in the past year or 12 months: smoked cigarettes; tried beer, wine, or hard liquor when their parents didn't know about it; used marijuana; and used other illegal drugs. Response choices were (1) *none*, (2) *1 friend*, (3) *2 friends*, (4) *3 friends*, and (5) *4 friends*. Alpha reliability was .87.

Interaction with Antisocial Peers assessed the amount of close friends the student had who engaged in problem behaviors. The 6-item, 5-point scale asked how many of their best friends have exhibited the following behaviors in the past year or 12 months: been suspended from school, carried a handgun, sold illegal drugs, stolen or tried to steal a motor vehicle, been arrested, and dropped out of school (α=.83). Response choices were (1) *none*, (2) *1 friend*, (3) *2 friends*, (4) *3 friends*, and (5) *4 friends*.

The Rewards for Antisocial Involvement risk factor was measured through a 9-item, 4-point scale that asked how wrong they thought their best friends would feel it would be for them to take a handgun to school, steal anything worth more than $5, pick a fight with someone, attack someone with the idea of seriously hurting them, stay away from school all day when your parents think you are at school, drink alcohol regularly, smoke cigarettes, smoke marijuana, and use other illegal drugs (α=.91). Response choices were (1) *very wrong*, (2) *wrong*, (3) *a little bit wrong*, and (4) *not at all wrong*.

Rebelliousness was a 3-item, 4-point scale that addressed whether students felt they were bound by rules of society (α=.79). The three items were: "I ignore rules that get in my way"; "I like to see how much I can get away with"; and "I do the opposite of what people tell me, just to get them mad." Response choices were (1) *NO! Definitely not true for you*; (2) *no, mostly not true for you*; (3) *yes, mostly true for you*; and (4) *YES! Definitely true for you*.

Sensation Seeking was assessed through a 3-item, 6-point scale that asked students how many times they have done crazy things even if they were dangerous, done something dangerous because someone dared you to do it, and done what feels good no matter what the consequences. Students responded to each question with one of the following response choices: (1) *never*; (2) *I've done it, but not in the past year*; (3) *a few times this year*; (4) *about once a month*; (5) *2 or 3 times a month*; and (6) *once a week or more*. Alpha reliability for the scale was .83.

Peer Disapproval of ATOD Use was an 8-item, 4-point scale that asked students to indicate how they thought their close friends feel (or would feel) about them: smoking one or more packs of cigarettes a day, having five or more alcoholic drinks once or twice every weekend, smoking marijuana, using cocaine once or twice, using methamphetamine once or twice, trying inhalants to get high, using ecstasy occasionally, and using other illegal drugs (α=.96). Response choices were (1) *would think it was cool*, (2) *wouldn't care*, (3) *would disapprove*, and (4) *would strongly disapprove*. The question related to ecstasy use was added to the 2002 "Peer Disapproval of ATOD Use" scale. The addition of the ecstasy item increased the reliability of the scale from .94 in 2000 to .96 in 2002 and 2003.

Belief in the Moral Order was measured using a 3-item, 4-point scale that asked students to respond to the following items: "I think it is okay to take something without asking if you can get away with it"; "I think sometimes it's okay to cheat at school"; and "It is okay to beat up people if they start the fight" (α=.76). Response choices were (1) *NO! Definitely not true for you*; (2) *no, mostly not true for you*; (3) *yes, mostly true for you*; and (4) *YES! Definitely true for you*. These response choices were all recoded so that higher numbers reflected the student's knowing right from wrong.

Educational Aspirations asked students how likely it was that they would go to college and how likely it was that they would graduate from a four-year college (α=.84). The response choices for the 2-item, 4-point scale were (1) *definitely won't*, (2) *probably won't*, (3) *probably will*, and (4) *definitely will*.

## *Creation of Risk and Protective Factor Profiles and Indexes*

Each risk and protective factor scale was created into a dichotomous scale so that community profiles could be developed which would show the percentage of youth at risk on a given risk factor scale and the percentage of youth protected on a given protective factor scale. Dichotomous scales were also created so that the number of risk factors an individual is exposed to and the number of protective factors an individual is exposed to could be added to create risk and protective factor indexes. The risk and protective factor framework is based on the assumption that substance use and antisocial behaviors are not influenced by any single risk and protective factor. Rather, scholars over the years have argued that it is the accumulation of multiple risk factors and multiple protective factors that impacts substance use and antisocial behaviors. Thus, being able to add the risk and protective factors to create indexes is a useful way to examine the amount of overall risk or resiliency to which an individual is exposed.

Dichotomous risk and protective factor scales were created using a standardized cutpoint formula (median plus .15, times the standard deviation) on the 2000 statewide data set for each risk and protective scale. The cutpoints created in 2000 were the same cutpoints used in 2002 and 2003. The formula used in 2000 was established by the Social Development Research Group (SDRG) from the University of Washington after analyzing more than 200,000 student surveys from several states across multiple years. The method utilized by the research group to develop the formula involved determining, for each risk and protective factor, the cutpoint score that best separated the at-risk group from the not-at-risk group. The criteria for selecting the more at-risk and the less at-risk groups included academic grades (the more at-risk group received "D" and "F" grades; the less at-risk group received "A" and "B" grades), ATOD use (the more at-risk group had more regular use; the less at-risk group had no drug use and used alcohol or tobacco on only a few occasions), and antisocial behavior (the more at-risk group had two or more serious delinquent acts in the past years, the less at-risk group had no serious delinquent acts).

As a validity test for each of the newly created dichotomized variables in 2000, crosstabs were run using the dichotomous risk or protective factor scale as one variable and treatment needs as the second variable. The 2002 and 2003 data were subjected to the same validity test. If the dichotomized risk scale accurately discriminated between at-risk groups and less at-risk groups, then the majority of the respondents who need treatment should be categorized as meeting the risk criteria. Dichotomized protection scales should operate in a similar fashion. However, because the protection variables buffer against the negative influences of risk, rather than work directly on preventing substance use, the dichotomous protection variables are viewed as discriminating well as long as the majority of the respondents who need treatment do <u>not</u> meet the protection criteria. For example, the risk variable "Early Initiation of Problem Behaviors" was crossed with treatment needs and, of the students diagnosed as needing treatment in 2003, 88% met the criteria for this risk variable. As a further example, the protective variable "School Rewards for Positive Involvement" was crossed with treatment needs and, of the students needing treatment, 84% did *not* meet the criteria for the protection variable; only 16% of the students who met the protective factor criteria for School Rewards for Positive Involvement needed treatment.

Most of the dichotomized variables were able to discriminate between those needing treatment and those not needing treatment by at least 60%, with many discriminating by at least 75%. All of the variables, except for "Parental Attitudes Favorable Toward ATOD Use" and "Ability to Purchase Alcohol or Tobacco," were able to discriminate by over 50%. "Parental Attitudes Favorable Toward ATOD Use" (able to predict only 48% of those needing treatment in 2003) and "Ability to Purchase Alcohol or

Tobacco" (able to predict only 42% of those needing treatment in 2003) were able to discriminate between those needing treatment and those not needing treatment in 2000 and, thus, were left as risk scales in the current study. Cutpoints could have been changed on some of the variables to allow them to better discriminate those with substance abuse problems, but the then trend data becomes less meaningful. Additionally, the theory behind the use of the risk and protective factors states that no one risk or protective variable accounts for substance use; rather it is the amount of factors to which one is exposed that influences vulnerability. Thus, although some factors do not discriminate well between those who currently need treatment and those who don't currently need treatment, the factors may increase risk when combined with other risk factors and may predict future treatment needs. Some factors may also be better predictors of future behavior that has not yet occurred for the student.

The risk variables in 2003 best able to discriminate between currently those needing treatment and those not needing treatment (i.e., more than 70% of the students with treatment needs met the risk criteria) were (1) Exposure to Community ATOD Use, (2) Laws & Norms Favorable to ATOD Use, (3) Perceived Availability of Drugs & Handguns, (4) Early Initiation of Problem Behaviors, (5) Favorable Attitudes Toward ATOD Use, (6) Antisocial Behaviors, (7) Favorable Attitudes Toward ASB, Friends' ATOD Use, (8) Interaction with Antisocial Peers, (9) Rewards for Antisocial Behaviors, and (10) Sensation Seeking. The protective variables in 2003 best able to discriminate between those needing treatment and those not needing treatment (i.e., more than 70% of the students who did *not* have treatment needs met the protection criteria) were (1) Family Opportunities for Positive Involvement, (2) School Rewards for Positive Involvement, (3) Peer Disapproval of ATOD Use, and (4) Belief in the Moral Order.

Cutpoints for each scale at each grade level are listed in Table 9 on pages 44 and 45. Students who score higher than the cutpoint meet the criteria for the particular risk or protective factor. The cutpoints for each scale will remain constant over the years and will be used to produce the profiles for future surveys. Since the cutpoints for each scale will remain fixed, the percentage of youths above the cutpoint on a risk factor scale (at-risk) and the percentage of youths above the cutpoint on a protective factor scale (protected) will provide a method for evaluating the progress of prevention programs in various communities.

The risk and protective factor indexes were created by adding the dichotomized risk and protective factors. The risk factor index ranged from 0 to 24 ($M$ = 8.62, $Mdn$ = 8.00, $SD$ = 10.54). The protective factor index ranged from 0 to 10 ($M$ = 4.68, $Mdn$ = 5.00 $SD$ = 4.73). The higher the number of risk factors, the greater the student's vulnerability to substance use and delinquency; the higher the protective factors, the more protected the student is from using substances and engaging in antisocial behaviors.

## POSSIBLE SOURCES OF ERROR

As in all surveys, the limitations of the survey and the manner in which the data are collected must be taken into account when interpreting the results. Two types of possible errors, sampling errors and nonsampling errors, should be addressed when considering the limitations of the findings discussed in this report. Each of these, and methods for eliminating or reducing them, are discussed on the following pages.

## *Sampling Errors*

Sampling errors are those errors that occur from the way in which the respondents are chosen and populations are targeted. Sampling errors were primarily eliminated in the current study by selecting all public schools with students in grades 6 and above to participate in the study and then using a systematic equal probability sampling with a random start to select approximately one third of the classes from each of the public schools to participate in the survey. Sampling errors were also eliminated by making sure all private and charter schools had a chance to participate and then utilizing universal sampling technique with the private and charter schools to make sure every student had the chance to participate. Attempting to survey as many students as possible was utilized because the study was already biased by the exclusion of any student not receiving parental consent to participate. Thus, one limitation to the study, and one source of sampling error, is the exclusion of those students who did not return their parental consent cards or whose parents indicated that their child could not participate.

A secondary sampling issue has to do with the fact that no student could be forced to take the survey. The survey was named *Ka Leo O Na Keiki*, which is broadly translated into "The Voice of the Children." Students were told that the survey was their chance to tell the rest of Hawaii what people in their age group are thinking, feeling, and doing. The teachers administering the survey were instructed to tell the students that their voice helps tell the rest of Hawaii about the needs of the students in various communities in Hawaii.

Sampling errors are also made when students are excluded due to being absent and having dropped out of school. Schools were encouraged to allow time for survey make-ups, and most of the schools availed themselves of the opportunity. In sum, sampling errors were primarily eliminated by providing students an equal chance of being selected to participate in the study, but errors exist because students are excluded from the survey if they do note receive parental consent, choose not to participate, and are not in attendance the day of the survey. Because substance use is usually highest among students with high absenteeism or who are rebellious by nature (i.e., didn't want to participate), the results reported here are likely a conservative estimate of substance use in Hawaii. The impact of parental consent is more difficult to predict. Some parents may elect to have their child excluded from the study because they are afraid their child will report on the family's substance use; some parents may elect to have their child excluded from the study because they are afraid of exposing their child to information about drugs.

## *Nonsampling Errors*

Nonsampling errors are those errors which are the result of such things as student mistakes in marking items, machine scanning errors, differences in interpretations of questions, and student dishonesty. These nonsampling errors were minimized by changing survey questions from year to year after receiving student and teacher feedback, doing random checks on scanned surveys, providing clarification on questions that are frequently misinterpreted by students, and scanning surveys for dishonesty. Before survey booklets were submitted for scanning, each booklet was examined to make sure that answers had been marked appropriately. If a survey booklet contained inappropriate markings (e.g., circling of answers rather than filling in the circle, partial markings of circles, inadequate erasures, use of pen rather than pencil) corrections were made prior to having the survey run by the University of Hawaii Computing Center. At this time, survey booklets were also examined for any evidence that students did not take the survey seriously (e.g., obvious patterns in markings). After the surveys were scanned, the computer data

were compared against a random set of survey booklets to ensure that the optical scanning procedures were working correctly to read all markings. The scanning procedures occasionally read erasures as double markings. All double markings detected by the scanner were manually checked. If the double marking was actually an erasure picked up by the scanner, the double marking was replaced to reflect the student's actual answer.

Self-reporting depends on honesty in answering questions. Data were screened in the same manner as previous years to eliminate students who admitted responding dishonestly, or who provided answers that did not logically coincide with one another (2% were eliminated). For instance, a student who reported never using a certain drug but then reported having used it on 20 or more occasions indicates some level of deception. Booklets were also eliminated from the analyses if they contained obvious patterns in markings or had written jokes or comments that indicated the student did not take the survey seriously.

These screening procedures are best suited for detecting students who fake high substance use but not those who fake low use. Thus, questions arise as to whether substance use might be under-reported in this study. Researchers conducting the *Monitoring the Future Study* have provided a considerable amount of evidence that strongly suggests under-reporting of substance use by adolescents is very limited in their study. Given that administration procedures and questionnaire instructions for the *2003 Hawaii Student Alcohol, Tobacco, and Other Drug Use Survey* are very similar to those used in the *Monitoring the Future Studies,* one would expect under-reporting to be quite limited.

Perhaps the greatest potential bias to Hawaii trend data presented in this report concerns the change in administration time frame from the spring semester to the fall semester. Hawaii survey efforts prior to 2003 involved administering the survey in February. The spring administration was consistent with the national survey effort, *Monitoring the Future*. The fall administration time frame used in 2003 was approximately three to four months earlier than previous survey efforts in Hawaii, as well as the national effort. As a result, serious questions can be raised as to whether changes in Hawaii students' prevalence reports from 2002 to 2003 reflect real changes or a result of surveying the students earlier in the academic year. Additionally, the fall administration date in Hawaii calls into question whether any noted differences between Hawaii reports and national reports reflect real differences or are a function of surveying Hawaii students in the fall, rather than the spring. Understanding whether the change in administration date creates a bias, and to what degree, can only begin to be ascertained after several more years of fall data collection.