

Alcohol, Tobacco, and Drug Use by Grade Level among Middle School and High School Students in the 2007 New Mexico Youth Risk and Resiliency Survey (YRRS)

Numerous negative health and behavioral outcomes are associated with the early initiation of alcohol, drug, and tobacco use. Alcohol use at an early age is associated later in life with alcohol dependence and many chronic conditions. Early cigarette smoking is associated with heavy cigarette smoking, failure to quit smoking, lung cancer, and other chronic conditions. Marijuana use at an early age is associated with lifetime use of other drugs. Early use of alcohol, tobacco, and marijuana are associated with low educational attainment and dropping out of school.

Negative behavioral outcomes associated with early initiation of substance use were demonstrated by the 2007 NM High School YRRS. New Mexico high school students age 17 or older who were early initiators (first used a substance before age 13) of cigarette smoking were more likely than later initiators to be current smokers (75.8% vs. 57.5%); early initiators of alcohol use were more likely to be current drinkers (76.2% vs. 61.2%); and early initiators of marijuana use were more likely to be current marijuana users (69.2% vs. 44.8%).

Initiation of alcohol, drug, and tobacco use among NM youth often occurs earlier than the high school years. Among 9th – 12th grade students, 18.0% first smoked a whole cigarette before age 13, 30.7% had their first drink of alcohol before age 13, and 18.2% first tried marijuana before age 13 (2007 NM HS YRRS). However, items about age of initiation on the High School (HS) YRRS are inadequate for estimating either the prevalence of use or the age at first use among younger students. Because the school-based YRRS does not represent high school dropouts, age at first use is likely an underestimate, especially among students in higher grade levels when substance users are more likely to have dropped out. Recall bias may affect estimates of age at first use, because the YRRS relies on self-reports of behaviors that occurred up to 5 years or more before survey administration.

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In order to obtain prevalence estimates of substance use among pre-high school students, a middle school (MS) YRRS was conducted in 2007. The 2007 MS YRRS complemented the regular HS YRRS, also conducted in 2007. This paper presents grade level-specific prevalence estimates for alcohol, tobacco and drug use for public school students, grades 6 – 12, using data from the 2007 MS and HS YRRS surveys.

Methods

The NM YRRS is a project of the New Mexico Department of Health and the Public Education Department, with technical assistance from the UNM Prevention Research Center and the Centers for Disease Control and Prevention (CDC). The NM YRRS has been conducted in public high schools in odd numbered years since 2001. The MS YRRS was conducted for the first time in 2007.

Questions about substance use were developed by the CDC. Because the questions were designed to be age appropriate, some minor differences exist between the middle school and high school questionnaire items that address similar concepts.

For both the MS and the HS YRRS, public schools were selected with probability of selection proportional to the size of the school. From each participating school, students in selected second period classes were asked to participate. Data were weighted by race/ethnicity, gender, and grade level.

This report includes results from a subset of 2,638 survey responses from the HS YRRS which were selected to provide statewide estimates. The HS response rate was 60%. For the middle school survey, 8,503 com-

pleted surveys were received. The MS response rate was 51%.

Statistical significance was determined by 95% confidence intervals. Differences between the MS YRRS (grades 6 – 8) and the HS YRRS (grades 9 – 12) were not evaluated for statistical significance.

Results

The prevalence of lifetime alcohol use in the MS YRRS increased by grade level from 35.3% (6th grade) to 55.5% (8th grade), and in the HS YRRS from 61.7% (9th grade) to 76.6% (11th grade) and 75.0% (12th grade). This represents a 57% increase in prevalence from 6th to 8th grade, and a 24% increase in prevalence from 9th to 11th grade. The greatest increase in prevalence from one grade to the next grade was from 6th (35.3%) to 7th (49.4%), a difference of 13.9 percentage points (pp). (Figure 1 on back page).

There was an 87% increase in the prevalence of current drinking (alcohol use within the past 30 days) by grade level from 6th (15.6%) to 8th grade (29.2%), and a 28% increase from 9th (31.5%) to 12th grade (49.0%). The greatest difference in prevalence between consecutive grades was from 6th (15.6%) to 7th grade (24.9%), a difference of 9.3 pp.

The prevalence of binge drinking (5 or more drinks in a row, or within a couple of hours, within the past 30 days) increased by 114% over the middle school years (6th = 9.0%; 8th = 19.3%) and by 47% over the high school years (9th = 21.3%; 12th = 31.4%). The greatest increase in prevalence between consecutive grades was

from 6th to 7th grade (16.1%, 7.1 pp).

There was an 86% increase in the prevalence of lifetime cigarette smoking from 6th (24.8%) to 8th grade (46.2%) and an increase of 24% from 9th (52.3%) to 11th grade (64.9%). The prevalence for 12th grade was 59.9%. The greatest increase in prevalence was 11.1 pp, and occurred between 6th and 7th grade and between 9th and 10th grades.

The prevalence of current cigarette smoking (smoked a cigarette in the past 30 days) increased by 92% from 6th (8.5%) to 8th grade (16.3%), and by 18% from 9th (22.2%) to 11th grade (26.1%). The prevalence for 12th grade was 25.2%. The greatest increase in the prevalence from one grade to the next occurred between 8th and 9th grade (5.9 pp) (Figure 2).

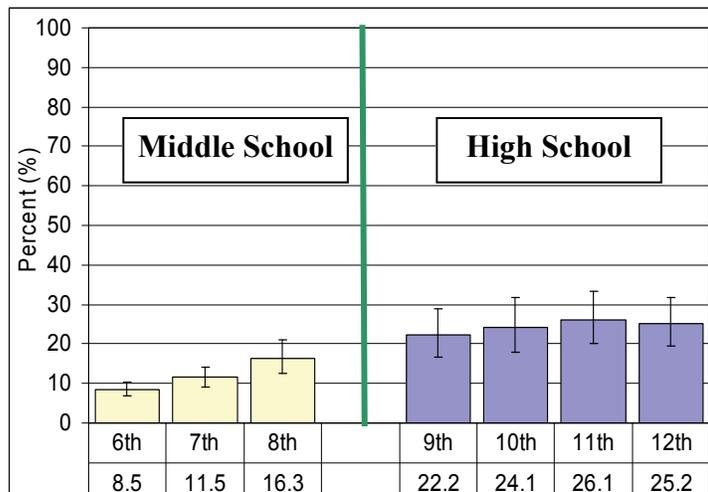
There was an 83% increase in the prevalence of current cigar smoking (smoked cigars, little cigars, or cigarillos in the past 30 days) from 6th (6.3%) to 8th grade (11.5%). There was a slight decrease in the prevalence of cigar smoking over the high school years, although these differences were not statistically significant (9th = 19.2%; 10th = 19.4%; 11th = 18.1%; 12th = 18.1%). The greatest increase in prevalence from one grade to the next was from 8th to 9th grade (7.7 pp).

The prevalence of past 30-day smokeless tobacco use increased by 27% from 6th (4.1%) to 8th grade (5.2%), although there were no statistically significant differences by grade level. There was a 63% increase in prevalence from 9th (9.0%) to 11th grade (14.7%), while the prevalence for 12th grade (9.6%) was lower than for 11th grade. There were no statistically significant differences by grade level. The greatest increase in prevalence between consecutive grades was from 8th to 9th grade (3.8 pp).

Lifetime marijuana use increased in prevalence by 112% over the middle school years, from 13.9% for 6th grade and 29.4% for 8th grade. The prevalence increased by 27% over the high school years, from 41.5% for 9th grade and 52.5% for 12th grade, although this difference was not statistically significant. The greatest increase from one grade to the next was from 8th to 9th grade (12.1%).

There was an 89% increase in current marijuana use (use within the past 30 days) by grade level from 6th

Figure 2. Current Cigarette Smoking by Grade Level Grades 6 – 12, New Mexico, 2007



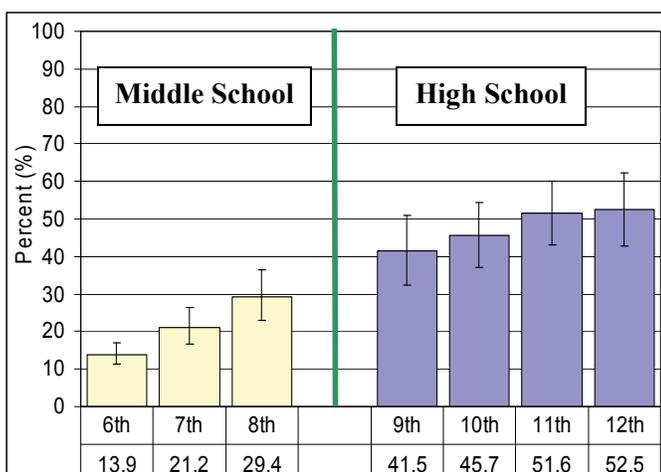
(8.9%) to 8th grade (16.8%), and a 15% increase in prevalence from 9th (22.6%) to 11th (25.9%). The prevalence for 12th grade (25.4%) was slightly lower than for 11th grade (not statistically significant). The greatest increase in prevalence from one grade to the next was from 8th to 9th grade (5.8 pp) (Figure 3).

The prevalence of lifetime cocaine use increased by 84% between 6th and 8th grades (from 3.2% to 5.9%) and by 68% from 9th to 11th grades (from 9.0% to 15.1%). The prevalence in 12th grade was 13.6%. The greatest increase in prevalence from one grade to the next was from 10th to 11th grade (5.7 pp).

Discussion

For most measures examined here, substance use prevalence increased by grade level at a greater rate among middle school students than among high school students. For many indicators, prevalence of use by

Figure 3. Current Marijuana Use by Grade Level Grades 6 – 12, New Mexico, 2007



grade level is dynamic during the middle school years and up to grades 9 or 10 in high school, and then exhibits little change over the later high school years.

The percent increase in prevalence by grade level was higher for the MS YRRS than the HS YRRS for all three alcohol related indicators (lifetime alcohol use, current drinking, and binge drinking), for three of the four tobacco related indicators (lifetime cigarette smoking, current cigarette smoking, current cigar smoking), and for all three indicators of other drug use (lifetime marijuana use, current marijuana use, and lifetime cocaine use).

For most of the measures, the greatest increase in

prevalence from one grade level to the next occurred at or before the shift from middle school to high school. For all three alcohol measures, the greatest increase in prevalence occurred from 6th to 7th grade. For three tobacco measures (current cigarette smoking, current cigar smoking, and current smokeless tobacco use), and for two of the three measures of other drug use (lifetime marijuana use and current marijuana use), the greatest increase in prevalence occurred from 8th to 9th grade. For lifetime cigarette smoking, the greatest increase in prevalence from one grade to the next was 11.1 pp, an increase that occurred from 6th to 7th grades and from 9th to 10th grades.

While the statistical significance of differences in prevalence between 8th and 9th grade was not evaluated, the differences may represent real increases in the prevalence of these behaviors that are consistent with the general increase in the prevalence of substance use with grade level and coincident with changes in social atmosphere concurrent with the shift from middle school to high school. It is also possible that some of the difference in prevalence from 8th to 9th grade can be accounted for by differences in survey administration or methodology between the two surveys (i.e., slight differences in question wording, levels of non-response).

For several indicators there was a decrease in prevalence by grade level from 10th or 11th grade to 12th grade. While these differences were usually slight and not statistically significant, it is notable that they occurred for 7 of the 10 indicators. It is possible that these differences may represent real differences attributable to the high rate of high school drop out among substance users.

Conclusions and Recommendations

Prevention efforts should be implemented before students have initiated substance use and before early use has become established behavior. Therefore, interventions should be targeted at students in grades 6 – 9 or earlier. The planning of interventions and monitoring of their effectiveness is dependent upon high quality, regular surveillance. The Middle School Youth Risk and Resiliency Survey should be supported, encouraged, and implemented once every two years.

For references, please contact author.

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Figure 1. Lifetime Alcohol Use by Grade Level, Grades 6 – 12, New Mexico, 2007

