

# Comparative Description of Migrant Farmworkers versus Other Students Attending Rural South Texas Schools: Substance Use, Work, and Injuries

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**ABSTRACT:** *Context:* Little is known about substance use, work characteristics, and injuries of youth from migrant farmworker families. Some evidence suggests that migrant youth may be at greater risk for substance use and work-related injuries than nonmigrant youth. **Purpose:** The aim of this study is to compare substance use, employment, and injury data from migrant and nonmigrant youth residing in rural South Texas. **Methods:** Anonymous cross-sectional survey data were collected from 7,302 middle and 3,565 high school students during a regular class. Classification as a migrant student occurred if the student responded positively to: "Does your family move around the state or nation to pick fruits or vegetables for work?" **Results:** About 5% of South Texas middle and high school students reported belonging to a migrant family. Compared to nonmigrant students, migrant youth were more likely to report frequent substance use. Youth belonging to migrant families were less likely to work for pay on weekends but more likely to work for pay on weekday mornings before school. These youth were also more likely to have ever been injured while working than nonmigrant students. **Conclusions:** These results demonstrate a need for additional interventions in this most vulnerable rural population. Specifically, targeted educational programs to enhance the occupational safety and health of migrant youth, further research into effective substance abuse treatment and prevention programs in rural areas, and enhancement of child labor laws are recommended.

the work experiences and health status of adult migrant farmworkers.

Children and adolescents residing in rural areas encounter different cultures, health risks, and access to health care than those living in urban areas.<sup>3</sup> For children of migrant farmworkers, in addition to these urban vs rural differences, it is necessary to consider unique issues including educational challenges, mental health problems, and health hazards.<sup>3-9</sup> Other research indicates that migrant children are more vulnerable to academic and emotional problems than are nonmigrant children in similar social situations. Especially vulnerable are those migrant children who are not fluent in the English language.<sup>10</sup>

Additional studies are clearly needed to better assess the prevalence of work-related characteristics and risks, as well as substance use behaviors, in this chronically underserved population. The current study of a large rural South Texas sample compares work patterns, injuries, and substance use of students from migrant farmworker families and other, nonmigrant youth in order to identify priority areas for future research or intervention.

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Included in rural communities are the estimated more than 4 million migrant farmworkers and their dependents.<sup>1</sup> Many of these children frequently perform farmwork as well. In 1997, an estimated 116,000 15-17 year olds worked as hired farmworkers.<sup>2</sup> Over the past few decades, increasing numbers of studies have documented

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## Methods

**Sample.** Data in this cross-sectional study were collected as part of the Safe and Drug Free Schools Program's (SDFSP) assessment of the prevalence of substance use among Texas Education Agency students representing 27 middle and 23 high schools in 11 contiguous counties in South Texas close to the US-Mexico border. The SDFSP's coordinator recruited all 42 school districts in these counties. Fifteen school districts in the sample of districts containing middle schools and 13 school districts in the sample of districts containing high schools declined participation because of time constraints. Participating and nonparticipating districts were located in small towns and rural areas except for a single, small urban area in the nonparticipating group. Therefore, these data represent students from schools located entirely in small towns and rural areas. Nearly 5% of the estimated population of migrant and seasonal farmworkers in Texas live in the counties comprising this region.<sup>11</sup> The distribution of the educational status of parents and of student ethnic characteristics was similar between participating and nonparticipating districts. Sixty percent of middle and high school students in participating districts were eligible to receive free or reduced cost lunches; the median percentage of Hispanic middle and high school students in participating districts was almost 75%.

In schools with 200 or more students, classes were randomly selected by grade from a master list of second period classes, using a random number table. In schools with fewer than 200 students, all students were surveyed.

The total middle and high school population in the participating schools was 11,523 and 12,770, respectively. The number of students eligible to complete the survey was 8,757 in middle and 8,973 in high school. A total of 7,420 sixth through eighth graders (85% of eligible students) and 7,221 9th through 12th graders (80.5% of eligible students) were surveyed. Because of budget constraints, the analysis of high school students included only 10th and 12th graders. The number of 10th and 12th grade students who responded was 1,898 and 1,667, respectively ( $N = 3,565$ ), and the number of middle school students who responded was 7,302 (2,365 sixth graders, 2,487 seventh graders, and 2,450 eighth graders). Cases with missing data for 1 or more variables were excluded.

The Institutional Review Board at The University of Texas Health Science Center at Houston approved the study protocol and survey instrument (HSC-SPH-95-018). Following the Centers for Disease Control and Prevention's (CDC) Youth Risk Behavior Survey (YRBS) protocol, teachers received

instruction packets and administered the survey during students' regular classes.<sup>12</sup> The survey was anonymous; students recorded their responses directly on a computer-scannable answer sheet.

**Measures.** Survey items were selected and adapted from instruments previously used in other major studies of adolescent development and occupational injury, including some at the national level.

**Dependent Variable.** This analysis is based on a single yes/no item used to identify migrant farmworker families. Classification as a member of a migrant farmworker family occurred if the following item was answered positively: "Does your family move around the state or nation to pick fruits or vegetables for work?"

### Independent Variables

**Substance Use.** Substance use items were taken from the CDC's 1995 YRBS.<sup>12</sup> The test-retest reliability of the 1991 instrument was tested in 1992. Approximately 75% of items were rated as having "substantial" or higher reliability ( $\kappa = 61-100\%$ ).<sup>13</sup>

**Work Variables.** Current or recent (within the past 6 months) work status and weekly work hours at a paying job were taken from the Temple University Psychology Department's School-year Work Questionnaire (L. Steinberg, written communication, 1995). The latter variable was expressed as a 3-level variable with the following categories: employed 1-10 hours weekly, 11-20 hours, and 21 or more hours. Ever injured while working was taken from the North Carolina Teens at Work Questionnaire (K. Dunn, written communication, 1995).

**Covariates.** Demographic variables included students' self-reports of gender, grade, race/ethnicity, and maternal/paternal educational status, a measure of socioeconomic level. Race/ethnicity was collapsed into 3 categories: non-Hispanic white, Hispanic, and all other ethnic groups (African-American, Asian/Pacific Islander, American Indian/Alaskan Native, and mixed race). Maternal and paternal educational status was indexed into 3 groups: one or both did not graduate high school; both graduated high school but did not graduate from college; and one or both graduated college and attended graduate school.

**Methods of Analysis.** The purpose of this analysis was to provide a profile of demographic characteristics, substance use behaviors, work, and injury characteristics among students from migrant farmworker families and nonmigrant students. Frequency distributions were calculated for each of the

variables (demographic, substance use, and work) by migrant farmworker status (yes/no) and middle or high school student status. Odds ratios (ORs) and 95% confidence intervals comparing migrant farmworker students to nonmigrant students were estimated using SPSS (SPSS Inc., Chicago, Ill) unconditional multiple logistic regression models, adjusting for gender, grade, race/ethnicity, and parental education.

## Results

**Demographic Characteristics.** Six percent ( $n = 384$ ) of middle and 5% ( $n = 161$ ) of high school students reported belonging to a farmworker family. Approximately one third of migrant middle and high school students were female; about 50% of nonmigrant students were female. South Texas middle and high school students reporting their race/ethnicity as Hispanic comprised almost 60% of the sample regardless of their migrant status (yes or no). There were no significant differences in parent education between migrant and nonmigrant students in either middle school or high school.

### Association of Migrant Status and Substance Use.

The Table presents unadjusted data regarding substance use among South Texas middle and high school youth. Both students from migrant and nonmigrant families reported substance use that substantially exceeded data from CDC's YRBS in 1997 in many of the substance use categories. However, after adjusting for parent education, race/ethnicity, grade, and sex, ORs comparing students to nonmigrant families indicated that students from migrant families were significantly more likely to have ever used cocaine (middle school:  $OR = 3.5$ ; confidence interval [CI], 2.6-4.8) (high school:  $OR = 2.4$ ; CI, 1.7-3.6), marijuana (middle school:  $OR = 1.9$ ; CI, 1.4-2.5), inhalants (middle school:  $OR = 1.8$ ; CI, 1.3-2.4) (high school:  $OR = 2.6$ ; CI, 1.8-3.8), and steroids (high school: 5.7; CI, 3.6-8.9), and to have ever injected illegal drugs (middle school:  $OR = 3.5$ ; CI, 2.5-4.8). Migrant high school students were 40% less likely than nonmigrant students to have ever injected illegal drugs ( $OR = 0.6$ ; CI, 0.4-0.9).

Compared to nonmigrant students, migrant students were about twice as likely to have drunk alcohol 1 or more days within the past month (middle school:  $OR = 2.0$ ; CI, 1.5-2.5) (high school:  $OR = 1.8$ ; CI, 1.2-2.6), and smoked cigarettes 1 or more days within the past month (middle school:  $OR = 1.9$ ; CI, 1.4-2.6) (high school:  $OR = 1.8$ ; CI, 1.2-2.5). Migrant students were also more likely to have used snuff 1 or more days during the past month (middle school:  $OR = 2.7$ ; CI, 2.0-3.7) (high school:  $OR = 4.4$ ; CI, 2.9-6.7).

## Substance Use by Middle and High School Students in South Texas by Migrant Farmworker Family Status, 1995, and CDC YRBS

	Middle School		High School		CDC YRBS*
	Migrant	Non-migrant	Migrant	Non-migrant	
Substance Use	%	%	%	%	%
Ever injected illegal drugs	22.0	6.9	27.7	33.0	2.1
Ever cocaine use	26.4	9.3	32.1	13.6	8.2
Ever marijuana use	32.5	19.5	49.3	40.4	47.1
Ever inhalant use	26.0	14.5	34.4	14.6	16.0
Ever steroid use	43.3	37.4	24.7	4.4	3.1
1+ days drinking within past month	50.0	35.3	70.2	58.2	33.4
1+ days smoking within past month	45.0	28.5	48.4	34.7	36.4
1+ days snuff use within past month	23.6	8.6	34.4	19.1	9.3
Average sample size (no.)†	342	6,117	155	3,147	

\* CDC YRBS = Centers for Disease Control's Youth Risk Behavior Survey, 1997, in high school students.<sup>14</sup>

† Total  $n$  varies because of missing data.

A greater proportion of South Texas students from migrant and nonmigrant families reported 1 or more days of drinking alcohol, smoking cigarettes, and smokeless tobacco use within the past month than a nationally representative sample of students participating in the YRBS.<sup>14</sup> Similarly, South Texas migrant and nonmigrant students more frequently indicated ever using injected illegal drugs, cocaine, inhalants, and steroids than the large YRBS sample.

**Association of Migrant Status and Work Characteristics.** About half of all students, regardless of migrant status, reported current or recent (within past 6 months) work for pay in both middle school and high school. Eleven percent of migrant and 8% of nonmigrant middle school students reported working more than 20 hours per week, whereas nearly twice as many (20% of migrant and 18% of nonmigrant) high school students reported working this many hours.

Students from migrant families worked more often in the mornings (13% migrant vs 6% nonmigrant in middle school and 21% vs. 5% in high school), worked less often on the weekends (52% migrant vs 74% nonmigrant in middle school and 54% vs. 74% in high school), and more often reported having ever been injured while working (42% migrant vs 24% nonmigrant in middle school and 51% vs 24%, respectively, in high school). The following results were based on multiple logistic analyses, adjusted for parent education, race/ethnicity, grade, and sex. There was no statistical difference in the odds of working for pay or working more than 20 hours per week between migrant vs nonmigrant families. Compared to nonmigrant students, students from migrant families were about 3 to 6 times more likely to work 3 or more mornings per week before school (middle school: OR: 2.9; CI, 1.8-4.9) (high school: OR: 6.2; CI, 3.2-12.0). However, migrant students were 60% less likely to work 1 or more days on the weekend than nonmigrant students (middle school: OR = 0.4; CI, 0.3-0.6) (high school: OR = 0.4; CI, 0.2-0.6). Compared to students from families that do not migrate for work, migrant students reported work-related injuries 2 to 4 times more often (middle school: OR = 2.3; CI, 1.5-3.6) (high school: OR = 4.2; CI, 2.2-8.1).

## Discussion

Although previous empirical evidence has noted reason for concern regarding health and health risk behaviors of children of migrant farmworker families, this concern was based on theory and on small studies with low precision. The current study is among the first to compare substance use, work, and injuries collected from a large sample of migrant and nonmigrant children in a school setting in rural areas of South Texas. Further, school-based research provides a unique opportunity to access a hard-to-reach population. However, the study results should be interpreted with the following limitations in mind: (1) work-related injuries were self-reported and therefore subject to the accuracy of recall and not medically confirmed; (2) alternative school students, private school students, and school dropouts were not included in this sample, limiting the study's generalizability to public school students; and (3) the definition of migrant was based on the response to the question regarding the family moving around the country to pick fruits or vegetables; it was therefore an indicator definition of migrant family status, but was not time-specified. However, the results indicated that this definition resulted in strong predictive differences between the groups on a number of variables.

**Demographic Characteristics.** We found that female students from migrant families are significantly underrepresented among our South Texas middle and high school samples compared to female students from nonmigrant females. Although slightly more than 50% of nonmigrant students are female, only about 30% of migrant students are female. Because our data were collected cross-sectionally and anonymously, this result cannot be more fully explained.

**Substance Use.** Rural students have been reported to be at higher risk of engaging in health risk behaviors.<sup>15</sup> Specifically, substance use and abuse is a problem in many adolescent communities, including the rural South Texas communities from which these data were sampled. Numerous studies, including many nationally representative samples, have documented substance use among elementary, middle, and high school students.<sup>14,16-19</sup> Frequency data from our study reveal increased prevalence of substance use among migrant and nonmigrant youth from both the middle and high school samples compared to prevalences found by the YRBS among high school youth. For three-quarters of the 32 categories of substance use (by migrant status and school) reported in the Table, both migrant and nonmigrant students reported higher prevalences of substance use than students participating in the national YRBS survey of high school students.

Researchers note that certain environmental factors, such as low socioeconomic status and stress, can contribute to substance use in adolescents.<sup>20</sup> The sampling frame in our study was comprised of a group of rural South Texas schools in which an average of 60% of the students were classified as economically disadvantaged and received free or reduced-cost lunches. Thus, economic circumstances may account for the higher prevalences of substance use in our total sample.

Historically considered a problem in urban areas, substance abuse has been reported to be increasing in rural areas and converging with levels in urban areas,<sup>21</sup> and it was ranked as one of the top 10 Rural Healthy People 2010 priorities.<sup>22</sup> A number of intervention programs have been developed; however, the challenges to deliver and evaluate these programs in rural areas should be addressed. Further, there is a paucity of substance abuse treatment services in rural areas,<sup>3</sup> and this may be an area for future interventions and policy development.

**Employment Characteristics.** According to the US Census Bureau, 50%-53% of 16- to 19-year-olds reported



working for pay during the 1990s.<sup>23</sup> Similarly, about half of the students from migrant and nonmigrant families in this study indicated that they currently or recently (within the past 6 months) worked for pay. Migrant students indicated a greater likelihood of working 3 or more mornings a week compared to nonmigrant students; however, the significance of this finding is unclear.

With respect to work-related injuries, we found that migrant middle school students were 2 times more likely than nonmigrant students to have ever been injured while working; this association increases to 4 times among migrant high school students. Because no information regarding job tasks was collected, it is not possible to determine the causes of the increased likelihood of injury in this population. Researchers have frequently noted an increased rate of injury among young workers compared to other workers.<sup>24-25</sup> Jobs in agriculture have been shown to be especially hazardous; 1 study has found that adolescent farmworkers accounted for many more worker compensation claims than would be expected based on their distribution in the population of all claims.<sup>26</sup> Also, worker protections in the agricultural industry are much weaker than those in other industries, possibly contributing to an increase in work-related injuries among migrant farmworker children employed in agriculture.<sup>27</sup> These data support enhancement of child labor laws. Further, overall for these high school students analyzed together, we have reported that work intensity greater than 20 hours per week was associated with declines in school performance and engagement and decreased sleep duration.<sup>28</sup>

## Conclusion

This study emphasizes some significant problems facing middle and high school students from rural South Texas, including high rates of substance use among both migrant and nonmigrant students. We also noted a troubling increase in the likelihood of work-related injury in both middle and high school migrant students compared to nonmigrant students. However, in our quest to identify possible risk factors for physical and psychosocial health, we must use these data not to stigmatize an already vulnerable population<sup>29-30</sup> but to identify a population that could greatly benefit from additional resources and targeted interventions. Explanations for these findings are largely lacking, and more research is clearly needed to clarify our results and to develop appropriate interventions to improve the lives of these at-risk adolescents. However, based on what we have learned, there is a clear need to implement interventions to address adolescent

workplace safety risks. Further, these study results suggest targeted educational interventions and additional support for migrant students, research into the evaluation and increased delivery of effective rural substance abuse programs, and enhancement of child labor laws.

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