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On-the-Job Injury in South Texas Middle School Children

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## *Significant Findings.*

### *Injury.*

Results revealed that a substantial proportion of South Texas middle school students were EVER injured on-the-job (25%). Of the injured, almost one-third were hurt seriously enough to require medical attention and 15% missed more than three days of school due to their injuries. Middle school youth employed more than 20 hours weekly were at greater risk than those working fewer than 20 hours weekly. Types of jobs associated with work-related injury included restaurant work, agriculture, construction, and retail work. Students employed more than ten hours weekly were at higher risk of injury requiring medical attention than those working ten or fewer hours weekly (univariate). Restaurant work was significantly associated with work-related injury requiring medical attention. We also found that middle school Hispanics were at slightly lower risk of injury than whites, but at higher risk of injury requiring medical attention than whites. The likelihood and the severity of injury for males were significantly higher than that for females (Odds Ratio = 1.5 for both).

The types of jobs producing the greatest proportion of injuries to South Texas middle school youth were yard work and childcare; these two jobs were also the most frequently reported types of work for middle school youth. Fifty-two percent of injuries to middle school students occurred during these two types of employment. The most common types of injuries among working middle school youth were punctures/cuts/jabs and broken bones, followed by sprains/strains and shocks/burns. Punctures most commonly occurred during childcare and yardwork while broken bones were more likely to occur during restaurant and retail store work. Sprains occurred most often during agriculture and childcare, and shocks/burns during retail and restaurant work.

### *Prevalence and Patterns of Work.*

Labor force activity appears to be a widespread phenomenon among South Texas middle school students with 56% of students reporting current employment in a part-time job. Of the employed, 78% worked only a few hours weekly (1-10 hours); however, slightly more than one-fifth of middle schoolers worked more than 10 hours weekly. Employed middle school students worked an average of 8 hours weekly. Differences in the mean number of hours worked weekly were noted between males and females with males working, on average, 8.3 hours weekly compared to females who worked an average of 7 hours weekly. Middle school students were more likely to work in childcare and yardwork than in other types of jobs; of working females, 75% were employed in childcare while males worked mostly in yardwork and agriculture. The predominant reason for employment was to earn spending money (49%). Students who worked longer hours weekly slept less on weekend and weekday nights; however, workers tended to participate in extracurricular activities more than nonworkers.

### *Effects of Employment on Academic Factors, Health Risk Behaviors, Social Life, and Physical/Mental Health Concerns.*

The effects of employment during the school year on middle school students appear to be largely undesirable: working long hours was positively associated with using several substances (tobacco, alcohol, marijuana, cocaine, inhalants, injectable drugs), decreased sleep on weeknights and weekends, increased stress and frequency of headaches, and dissatisfaction with amounts of leisure time. Working more than 10 hours weekly was also correlated with slightly lower grades, and increased weekly absences, tardies, cheating and sleeping in class.

### *Usefulness of Findings.*

The extent and nature of the work experience of middle school students has not yet been documented in the scientific literature, although many children and early adolescents report working for pay before high school. The predominant aim of this study, therefore, was to examine the work experience of middle school students by exploring the relationship between employment and work-related injury, certain academic factors, social factors, and other mental and physical health factors, including risk behaviors. A second aim was to document the prevalence and patterns of employment in this sample which was primarily composed of lower-income, Hispanic students whose early employment circumstances are not well understood.

Evidence supporting the deleterious effects of school-year employment was considerable, especially our findings that students were more likely to engage in substance use as hours of weekly work increased. Working during the school year was also associated with other adverse effects, such as stress, school disengagement, poorer grades, headaches, and dissatisfaction with leisure time. Our findings regarding reductions in sleep among young workers add important new information to the growing body of literature on the possible effects of work on adolescent health and development. However, for several variables, students working a few hours weekly had better outcomes than nonworkers, suggesting that while working long hours weekly may have negative effects, working a few hours weekly may be beneficial in some cases.

A major contribution of this study is its description of the prevalence of injury in a previously undescribed population of middle school youth, especially our finding that increased weekly work hours are linearly associated with injury in this sample. An important addition to the literature is our finding that Hispanic middle schoolers experience fewer job-related injuries compared to whites, but are at greater risk of more serious injury than whites. Also, we substantiated the findings of other occupational injury studies of older youth regarding the prevalence of youth injury and several subgroup differences within that prevalence, i.e., that males are more frequently injured at work than females. However, we found no evidence that low-income, Hispanic youth were at greater injury risk than middle schoolers with better financial standing.

### *Abstract.*

Data on the work experiences of children and early adolescents are scarce. Preliminary evidence suggests, however, that very young workers – especially poor, minority youth – may be at risk for adverse work-related effects, including on-the-job injuries. Pre-existing work-related data from 7,420 South Texas middle school students, were analyzed according to the specific aims of the study: to determine the prevalence of employment among middle school youth; to document the prevalence of work-related injury in middle schoolers; to describe the demographic characteristics of working middle school students and injured workers; to describe quality of life issues associated with working and work-related injuries; and to determine environmental factors and behavioral factors associated with work-related injuries. Results indicate that 25% of employed students reported having ever experienced an occupational injury. Of the injured, 30% required medical help. A dose response effect was observed where increasing weekly work hours were significantly related to work injury. Types of jobs associated with work-related injury were restaurant work, agriculture, construction, and retail work. Restaurant work was associated with injury requiring medical help. The overall prevalence of employment was 56%. Three-quarters of workers were employed 1-10 hours weekly. Employed students worked an average

of 8 hours weekly. Middle school students were more likely to work in childcare and yardwork than in other types of jobs. About half of students reported working to earn spending money. Working longer hours weekly was associated with using several substances, decreased sleep, increased stress and frequency of having headaches, and dissatisfaction with amounts of leisure time. Working more than 10 hours weekly was also correlated with poorer school performance and school disengagement. Further investigation is needed to examine the impact of school-year work on youth functioning and to develop interventions to reduce work-related injuries in this population. Parents and professionals should monitor the number of hours of weekly work of middle school children

### *Body of Report:*

#### Introduction.

Anecdotal data from the popular literature and other limited, scientific data indicate that as many as one-third of youth have been employed during their middle school years, some in occupations that have been documented to be hazardous (Dunn, 1998). Interventions are needed to address occupational safety and health concerns among these employed children, their parents and employers, and other concerned professionals (Miara, 1997; Bowling, 1997). Toward this objective, a one-year grant under multiple National Occupational Research Agenda priority research areas (Special Populations at Risk – young, minority, low-income workers – and Traumatic Injuries) was awarded by NIOSH in September 1998. Specific aims included the following:

1. To determine the prevalence of employment and weekly work intensity levels among middle school youth;
2. To describe the prevalence of reported work-related injuries in middle school students;
3. To describe the demographic characteristics of middle school students who work and who report work-related injuries;
4. To describe quality of life issues (sleep, leisure time, stress) associated with working and work-related injuries;
5. To determine environmental factors (i.e., number of hours worked weekly, type of job) and behavioral factors (i.e., substance use, violence-related behaviors) associated with employment and work-related injuries.

#### Background and Significance:

State and national child labor laws prohibit the employment of children younger than 14 years of age (Texas Employment Commission, 1992; US Department of Labor, 1990). Despite these proscriptions against work in young children, emerging evidence suggests that some unknown proportion of young people work during their middle school years (6th through 8th grades or about 11-14 years old), probably in the informal sector, but possibly during the school year and in formal sector positions (Steinberg and Cauffman, 1995). Although early adolescents commonly relate working during their 6<sup>th</sup>-8<sup>th</sup> grade years, documentation of these work experiences in the scientific literature is largely unconfirmed. Information on the extent and nature of employment during the middle school years is also deficient. Like their older

adolescent counterparts, middle school youngsters may also be at risk for various occupational hazards, including work-related injury, already documented as a substantial public health problem in high school students (Miller, 1995; Parker, 1991; Belville, et al., 1993; Castillo, et al., 1994; Centers for Disease Control and Prevention, 1983; Cooper, et al., 1997; Cooper and Rothstein, 1995). Additionally, these youngsters may be susceptible, especially as hours of weekly work increase, to the negative academic, social, behavioral, and health effects that older adolescents have experienced as a result of working long hours weekly (Steinberg and Dornbusch, 1991; Steinberg, et al., 1993; Greenberger and Steinberg, 1986; Bachman, et al., 1986, Bachman and Schulenberg, 1993; Bachman and Schulenberg, 1991).

Finally, no information is available on the social variation in work patterns among lower-income and minority middle school youth, youngsters who may work more hours weekly due to their socioeconomic circumstances (U.S. General Accounting Office, 1991, Steinberg and Cauffman, 1995; Miller, 1995). The purpose of this report is to describe the prevalence and patterns of work and work-related injury among mostly low-income and minority 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> graders from South Texas, and the associations of school-year employment with quality of life issues, and environmental and behavioral factors among these students.

## Methods.

### Sample

During May 1995, data in this descriptive, cross-sectional study were collected as part of the Safe and Drug Free Schools Program's (SDFS) regular assessment of the prevalence of substance use among Texas Education Agency Region Two students who represented 27 junior high schools in 11 contiguous counties in South Texas (Weller NF et al, 1997). The SDFS's data collection provided an opportunity to examine issues of employment in relation to health and other behaviors.

The SFDS program coordinator recruited all 42 school districts in these counties. Thirteen districts declined participation due primarily to 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. Common adult occupations included refinery work, fishing, agriculture, and service industries.

The distribution of the educational status of student's parents and student racial/ethnic characteristics were quite similar among participating and nonparticipating districts. About 60% of students in participating districts were eligible to receive free/reduced cost lunches; the median percent of Hispanic students in participating districts was 73% .

The total student population in the participating middle schools was 11,523. At the larger schools, 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 number of students eligible to complete the survey was 8,757. A total of 7,420 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> graders, representing 85% of the eligible, was surveyed. The number of 6<sup>th</sup> graders who responded was 2,365, 7<sup>th</sup> graders 2,487, and 8th graders 2,450. Excluded from the analysis for work-related injury questions were non-workers (3,100) and cases with missing data on one or more variables (1,355), leaving a sample size of 2,965 students reporting working for pay at a usual job(s).

The study protocol was approved by The University of Texas Health Science Center Institutional Review Board (HSC-SPH-95-018). During the week prior to survey administration, parents received a passive informed consent form explaining the study and providing an opportunity to decline participation. Following the Center for Disease Control and Prevention's (CDC) Youth Risk Behavior Study (YRBS) protocol, teachers received instruction packets and administered the survey during student's regular classes (Kolbe, et al., 1993). The survey was anonymous; students recorded their responses directly on a computer-scannable answer sheet.

### Analysis and Measures

Survey questions were selected or adapted from instruments previously used in other major studies of adolescent development and injury, several at the national level: Temple University Department of Psychology: School-Year Work Questionnaire; North Carolina Teens at Work Questionnaire, East Carolina University; Massachusetts SENSOR Project Teens at Work Questionnaire; Institute for Social Research Monitoring the Future Survey, University of Michigan; School Sleep Habits Survey of EP Bradley Hospital), the Center for Disease Control and Prevention's Youth Risk Behavior Survey; Center for Epidemiologic Depression Scale; Minnesota Department of Health Work Injury Study; and the National Institute for Occupational Safety and Health's Occupational Injuries to Young Workers (Personal Communications with David Parker, Dawn Castillo, Kathleen Dunn, Lawrence Steinberg, Letitia Davis, Mary Karskadon, and the Institute for Social Research, 1995 for all; Basen-Engquist, et al., 1998); Radloff, 1977). The survey was approved by the Committee for the Protection of Human Subjects of The University of Texas Houston Health Science Center. Tables 1 and 2 provides a description of the variables, their coding, and source.

Current weekly work hours usually spent at a paying job(s) was considered as an indicator of how many hours a week a student usually worked or has worked – a typical school-year work pattern. For some analyses, this item was crossed with ever injured while working, creating an obvious temporality issue, since the injury referred to in ever injured while working could have occurred at the current weekly job or when a student was working at a different job with a different work pattern.

### Data Management, Screening, and Analysis.

Prior to data scanning after data collection in May of 1995, answer sheets were inspected for patterned and random responses and incomplete erasing. Raw data was stored in a zipped file and sent to the Project Director. A graduate assistant performed inspections of univariate descriptive statistics for accuracy of input, evaluated the amount and distribution of missing data for randomness, and assessed inconsistent and invalid responses by performing a series of edit checks using the CDC editing protocol for the 1995 YRBS data.

The specific aims of the pilot study guided the analysis plan. Descriptive statistical methods were used to examine the prevalence of working and reported work-related injuries among middle school workers. Associations between quality of life variables, environmental factors, behavioral factors, and work-related variables were tested using bivariate statistical methods, including chi-square statistical tests and t-tests. Multivariate logistic regression models were developed to further assess the relationships between environmental and behavioral factors and work-related outcomes. To examine whether the number of weekly work hours was associated with a poorer quality of life, analysis of variance and multivariate analyses of covariance were executed. Sociodemographic variables were controlled for in the multivariate models. Scheffe

tests were used to examine specific contrasts among workers in adjacent hours categories for the significant univariate variables. To estimate the magnitude of difference between nonworkers and high-intensity workers on academic, health risk behavior, social, and physical/mental health factors, a scale-free measure of the separation between two group means, a d-index, was also calculated.

## Results.

*Overall Sample Characteristics.* Characteristics of the overall sample are presented in Table 3. Fifty-four percent of the students were male. Hispanics made up the majority of the student population at 57%; whites comprise 43%. Forty-two percent of students reported having one or both parents who graduated college and one attended graduate school; 36% had one or both parents who did not complete high school. Almost 40% of middle school students were 8<sup>th</sup> graders.

### Results Pertaining to Injuries.

*Prevalence of Injury for the Overall Sample.* A total of 773 or 25% of employed students indicated sustaining an occupational injury while working for pay. Of the injured, 70% did not require medical attention. However, 30% of injured working students sought medical help from a doctor, nurse, or hospital (n=232). Almost 22% of injuries reported by employed students were punctures/jabs/cuts; 17% were sprains, strains, torn ligaments or muscles, i.e., pulled muscles, sprained ankles or strained backs; 18% were broken bones, breaks or fracture; 15% were shocks from electricity or burns from grease, fire or chemicals; 13% were bruises or crushes in which the skin was not broken; 9% were dislocations of joints, such as a jammed thumb; 7% were amputations (loss of body parts, such as fingers, toes, arms, or legs).

*Overall Probability of Injury by Work Intensity Level.* Table 4 presents the univariate odds ratios for work-related injury by work intensity level. A significant positive association was observed between injuries and the number of hours worked weekly (overall  $\chi^2 = 38.92$ ,  $df=2$ ,  $p = 0.0000$ ). A chi-square linear trend of association was observed for these variables,  $p < .000$ . Students working 21 or more hours per week (OR = 2.4, Wald = 36.24,  $p = 0.0000$ ) and 11-20 hours per week (OR = 1.5, Wald = 8.3,  $p = 0.0039$ ) were more likely to have ever sustained a work-related injury compared to students who worked 1-10 hours per week, the referent group (OR = 1.0).

*Probability of Injury by Demographics.* Table 4 presents the univariate odds ratios for on-the-job injury by grade, gender, race/ethnicity and parent education. The probability for occupational injury was 32% for males ( $\chi^2 = 74.0$ ,  $df=1$ ,  $p = 0.0000$ ) and 18% for females. No significant differences in work-related injury were noted for grade, parent education, or race/ethnicity, or the latter two variables considered together.

*Predicting Work-Related Injury.* Tables 4 and 5 present the univariate and multivariate odds ratios, respectively, for variables which were anticipated to predict work-related injury: type of job, weekly work hours, grade, gender, race/ethnicity and parent education. The following variables were significantly related to injury in the univariate analysis: type of job, more weekly work hours (11-20 hours and 21+ hours), and male gender.

Significant predictive variables included in the multivariate model were the following: type of work --- farm/ranch (OR = 3.3, CI = 2.3; 4.9), restaurant work (OR = 3.2, CI = 2.1, 4.9), construction (OR = 2.4, CI = 1.5; 3.8), and retail work (OR = 1.7, CI = 1.1, 2.6). Other significantly predictive variables included in the model were weekly hours worked – working 21+ hours per week (OR = 1.8, CI = 1.3; 2.6). While weekly work hours was significant overall in predicting occupational injuries ( $p = 0.0024$ ), working 11-20 hours per week was not significantly different than working 1-10 hours per week ( $p = .2731$ ). Gender also significantly predicted on-the-job injury. Males were more likely to be injured (OR = 1.5, CI = 1.1, 2.0) than females. Although race/ethnicity and grade were not significant in the univariate analysis, these variables were entered into the multivariate model for the purpose of adjusting for demographics. After adjustment for type of work, hours worked weekly, gender, and grade, Hispanics had a significantly lower risk of injury than whites (OR = 0.8, CI = .61, .93). Removed from the model was parent education. The overall model chi-square was 154.5,  $df = 11$ ,  $p = 0.0000$ .

*Frequencies for Types of Job by Type of Injury.* Table 6 presents the type of injury by employment category when the injury occurred. Overall, the most frequently occurring injuries were puncture/jabs/cuts (22%), broken bones (18%), sprains (17%), shock/burns (15%) and bruises (13%). Greater than one-half of restaurant injuries involved broken bones and shocks/burns and one-third of retail store injuries were shocks/burns. Almost one-half of yard work injuries involved punctures and sprains. Punctures and bruises comprised slightly greater than one-half of injuries sustained during childcare, and sprains and punctures accounted for more than 40% of farm/ranch injuries.

*Lost Days from School.* Slightly more than half of injured workers lost no time from school. However, 41% lost one day to one week, and 7% lost eight days or more.

*Probability of Seeking Medical Help by Type of Job.* Among the injured workers who required medical help ( $n=232$ ), 76% were male. The frequency of seeking medical help was similar across the grades ( $\chi^2=.23$ ,  $df=2$ ,  $p=.89$ ) and parent educational status ( $\chi^2=2.5$ ,  $df=2$ ,  $p=.29$ ). Among the injured workers who needed medical attention, 63% were Hispanics. A linear trend of association ( $\chi^2=9.3$ ,  $df=1$ ,  $p=0.002$ ) was observed between hours worked weekly and injury requiring medical help. Among youth employed 1-10, 11-20, and 21+ hours weekly, 27%, 38%, and 39%, respectively, had injuries requiring medical help.

A positive association ( $\chi^2=34.57$ ,  $df=5$ ,  $p=.000$ ) was observed between type of job and injury requiring medical attention. Among injured workers needing medical help ( $n=232$ ), 23% worked in restaurants, 22% in yard work, 19% in agriculture, 16% in retail, 11% in childcare, and 8% in construction. Type of injury was also positively associated with the need for medical help ( $\chi^2=75.9$ ,  $df=6$ ,  $p=.000$ ). Among injured workers needing medical help, 33% required attention for broken bones, 18% shocks/burns, 13% punctures, 11% amputations, 11% sprains, 10% dislocations, and 5% had bruises.

Table 7 presents the univariate and multivariate odds ratios for variables anticipated to predict the probability of seeking medical help for injuries sustained at work. No significant differences in work-related injury requiring medical attention were noted for grade ( $p = .89$ ) or parent education ( $p = .29$ ). Hispanic workers were at greater risk of sustaining a job injury needing medical attention than whites (OR=1.8, CI=1.2-2.2). Weekly work intensity was a significant predictor of injury requiring medical attention. Injured workers employed 11-20 hours weekly (OR=1.7, CI=1.1-2.6) and 21+ hours weekly (OR=1.8, CI=1.1-2.7) were at greater risk of more

serious injury than students working 1-10 hours weekly. Type of job was found to be significantly predictive of serious injury. Students engaged in restaurant work (OR=5.5, CI=2.9-10.6), retail work (OR=2.8, CI=1.4-5.7), farm/ranch work (OR=2.4, CI=1.3-4.4), and construction (OR=2.3, CI=1.2-4.5) were at significantly greater risk of serious injury than students engaged in babysitting.

Significant predictor variables were entered in a multivariate logistic regression (model  $\chi^2=38.2$ ,  $df=13$ ,  $p=.0003$ ). After controlling for ethnicity, gender, weekly work hours and type of work, the univariate odds ratios for more serious injury were modified. The risk for Hispanics (OR=1.6, CI=1.1-2.4) and restaurant workers (OR=3.6, CI=1.7, 7.8) were significantly predictive of serious injury.

### Results Pertaining to Prevalence and Patterns of Work

*Prevalence and Intensity of Work.* Table 8 presents the prevalence of work by demographic groups. Fifty-six percent of students reported current employment in a part-time job. Of the employed, 78% percent worked 1-10 hours weekly, 13% worked 11-20 hours weekly, and only 9% worked more than 20 hours weekly. Among workers, significant differences were observed in the mean work hours by gender, grade, ethnicity, and parent education. Testing for differences in weekly work hours by the interaction of race/ethnicity and parent education revealed no significant interaction [ $F(2,3007) = 1.7$ ,  $p= 0.183$ ].

*Type of Job by Demographic Groups.* Table 9 presents the types of employment by demographic subgroups. Overall, students were more likely to work in childcare and yardwork than in other types of jobs. We found significant differences in type of job by gender ( $\chi^2 = 1431.9$ ,  $df = 5$ ,  $p=0.000$ ), ethnicity ( $\chi^2 = 52.76$ ,  $df=10$ ,  $p=0.000$ ), grade ( $\chi^2 = 28.76$ ,  $df=10$ ,  $p=0.002$ ), and parent education ( $\chi^2= 35.13$ ,  $df=10$ ,  $p=0.000$ ). Females were predominantly employed in childcare (74%) while males worked mostly in yardwork (49%) followed by farm/ranch work (16%).

*Motivation for Working by Demographic variables.* Table 10 presents the reasons for working by demographic variables. Significant differences in reasons for working were found for gender ( $\chi^2=41.36$ ,  $df=6$ ,  $p=0.000$ ), race/ethnicity ( $\chi^2=47.12$ ,  $df=12$ ,  $p=0.000$ ), and grade ( $\chi^2=37.49$ ,  $df=12$ ,  $p=0.000$ ). The most predominant motivation for employment for the overall sample was to earn spending money ( 49%) followed by multiple reasons for working (21%).

*Student Activities by Work Intensity Level.* Table 11 presents the mean and standard deviation for student activities (nightly sleep, number of school-day afternoons with friends, weekly extracurricular activities and homework hours) by weekly work intensity level. The results of the multivariate analysis of covariance indicate significant differences in the means for student activities by weekly work intensity level (Wilks Lambda = 11.21,  $p=0.000$ ). Longer hours of weekly work were significantly associated with decreases in hours of weeknight ( $p=0.000$ ) and weekend sleep ( $p=0.000$ ) and increases in weekly hours spent in school- and nonschool-related extracurricular activities (  $p=0.000$ ).

Students working 11 or more hours weekly slept about  $\frac{1}{2}$  to  $\frac{3}{4}$  hour less on weekend nights and  $\frac{1}{2}$  hour less on weekday nights than nonworkers or students working fewer than 10 hours weekly. Nonworkers spent fewer hours in school-related extracurricular activities (5 hrs weekly) than low- (6 hours), moderate- (7 hours) and high-intensity workers (8 hours). A similar trend

was noted for nonschool-related extracurricular activities with nonworkers spending three hours weekly, low- and moderate about 4 hours, and high-intensity workers spending 4.5 hours weekly in these activities.

#### Results of Work Effects on Academic Factors, Health Risk Behaviors, Physical/Mental Health Concerns, and Social Life.

Table 12 presents the results for the relationship between weekly work hours and school performance, risk behaviors, social life, and physical/mental health.

*School Performance and Engagement.* Overall, work intensity level was associated with declines in school performance/engagement, Wilk's Lambda = 12.6,  $p = 0.000$ . Moderate- and high-intensity workers made worse grades, had more unexcused absences per week, and cheated and slept in class and were tardy to school more frequently than nonworkers. When low- and high-intensity workers were compared, high-intensity workers had more weekly absences and school tardies, slept in class more frequently, and cheated more times weekly. In general, students working 11-20 hours weekly exhibited the poorest school performance profile.

*Health Risk Behaviors.* Overall, work intensity level was positively associated with increased risk behaviors, Wilks Lambda = 4.9,  $p = .000$ . High- and moderate-intensity workers reported using cigarettes and smokeless tobacco on more days in the past month, smoking more cigarettes per day on the days smoking occurred in the last month, getting drunk on more days in the past month, and drinking at least one alcoholic beverage on more days in the past month than nonworkers or low intensity workers. Working more hours weekly was also associated with more frequent lifetime marijuana, cocaine, inhalant, and injectable drug needle use, and with more frequent weekly aerobic exercise.

*Physical and Mental Health Concerns.* Work intensity level was associated with reductions in hours of weeknight and weekend sleep, and increased frequency of headaches and feelings of stress, Wilks Lambda = 5.6,  $p = .000$ . Moderate- and high-intensity workers slept less on weekday and weekend nights, and had headaches and felt stress more frequently than nonworkers and low-intensity workers.

*Social Life.* Work intensity level was negatively associated with feeling satisfied with amounts of leisure time, but positively associated with spending weekday afternoons with friends, Wilks Lambda = 9.3,  $p = .000$ . Moderate- and high-intensity workers were less satisfied with amounts of leisure time; however, workers spent more school day afternoons with friends than nonworkers.

Table 1. Variable Descriptions and Characteristics of Survey Measures for Prevalence and Patterns of Work.

<i>Variable</i>	<i>Coding</i>	<i>Source</i>
<i>Work (Dependent &amp; Independent)</i>		
Weekly work hours	Actual hours ranging from 1-31+	Temple
<i>Other Dependent</i>		
Weekly homework hours	Actual hours ranging from 0-7	Temple
Weekly nonschool extracurricular activity hours	Actual hours ranging from 0-15+	
Weekly school extracurricular activity hours	Actual hours ranging from 0-31+	
Hours weeknight sleep	Actual hours 1 = 10 + to 8 = 3 or less	Bradley
Hours weekday sleep	Actual hours 1 = 10 + to 8 = 3 or less	Bradley
Weekday afternoons with friends	Actual days 1 = 0 to 6 = 5 days	MTF
Type of job	Range from 1 = never to 8	Temple
Reasons for working	Range from 1 = never to 8	Temple
<i>Other Independent</i>		
Gender	Range from 1 = female to 2 = male	Safer Choices
Grade	Range from 1 = 6 <sup>th</sup> to 4 = ungraded/other	Safer Choices
Race/ethnicity	Range from 1 = white to 3 = all other	Safer Choices
Parent Education	Range from 1 = < high school to 3 = college /grad school	Safer Choices

Temple University Psychology Department, University of Michigan Monitoring the Future (MTF), EP Bradley Hospital Sleep Research Laboratory, University of Texas School of Public Health Safer Choices

Table 2. Description of Outcome Variables and Characteristics of Survey Measures for School Performance/Engagement, Health Risk Behaviors, Social Life, and Physical/Mental Health

<i>Outcome Variable</i>	<i>Coding</i>	<i>Reliability</i>	<i>Source</i>
<i>School Performance/Engagement</i>			
Weekly homework hours	Actual hours ranging from 0 – 7 +	NA**	Temple
Grades usually made	Range from 1 = F's to 7 = A's	NA	MTF
Weekly unexcused absences	Actual times ranging 1 = 0 to 8 = 12 +	NA	Temple
Weekly cheating episodes	Actual times range 1 = 0 to 8 = 12 +	Alpha =.68	Temple
Frequency class sleeping	Range from 1 = never to 5 = everyday	NA	Temple
Frequency school tardies	Range from 1 = never to 5 = everyday	NA	Temple
		NA	MTF
<i>Risk Behaviors</i>			
Days smoked past month	Range from 1 = 0 to 7 = all 30 days	Kappa 80%	YRBS
Cigarettes/day past month	Range from 1 = 0 to 7 = 20 + per day	Kappa 76%	YRBS
Days used snuff past month	Range from 1 = 0 to 7 = all 30 days	Kappa 72%	YRBS
Days used alcohol past month	Range from 1 = 0 to 7 = all 30 days	Kappa 68%	YRBS
Days drunk past month	Range from 1 = 0 to 7 = 20 + per day	Kappa 64%	YRBS
Frequency marijuana use in life	Range from 1 = 0 to 7 = 100 times	Kappa 88%	YRBS
Frequency cocaine use in life	Range from 1 = 0 to 6 = 40 + times	Kappa 73%	YRBS
Frequency of inhalant use in life	Range from 1 = 0 to 6 = 40 + times	NA	YRBS
Frequency steroid use in life	Range from 1 = 0 to 6 = 40 + times	Kappa 42%	YRBS
Frequency of injecting drugs in life	Range from 1 = 0 to 6 = 40 + times	Kappa 15%	YRBS
Sum frequency fruits and veggies yesterday (3 items)	Range from 1 = 0 to 4 = 3 + times	NA	YRBS
Sum frequency fat yesterday (3 items)	Range from 1 = 0 to 4 = 3 + times	NA	YRBS
Days aerobic exercise last week	Range from 1 = 0 to 8 = 7 days	NA	YRBS
<i>Physical/Mental Health Concerns</i>			
Hours weeknight sleep	Actual hours 1 = 10 + to 8 = 3 or less	NA	Bradley
Hours weekend sleep	Actual hours 1 = 10 + to 8 = 3 or less	NA	Bradley
Frequency head/stomach aches	Range from 1 = never to 5 = everyday	Alpha .67	CES-D
Frequency colds, minor illnesses	Range from 1 = never to 4 = often	Alpha .67	CES-D
Frequency feeling stressed	Range from 1 = never to 5 = always	Alpha .88	CES-D
<i>Social Life</i>			
Satisfaction with amount leisure time	Range from 1 = not at all to 5 = very	NA	MTF
Weekday afternoons with friends	Actual days 1 = 0 to 6 = 5 days	NA	MTF

\*Temple University Psychology Department, University of Michigan Monitoring the Future (MTF) Survey, Centers for Disease Control and Prevention's Youth Risk Behavior Survey (YRBS), EP Bradley Hospital Sleep Research Laboratory, Center for Epidemiologic Studies Depression Scale (CES-D)

\*\*NA = not available

Table 3 : Demographic Characteristics of Workers by Weekly Work Intensity Level

Characteristics	Weekly Work Hours, Current Job			Sample Size*
	1-10 hours n = 2351 %	11-20 hours n = 357 %	21+ hours n = 257 %	N = 2965 %
<u>Gender</u>				
Male	51.7	61.1	65.8	54.1
Female	48.3	38.9	34.2	45.9
<u>Grade</u>				
Sixth	29.4	25.8	21.4	28.3
Seventh	35.1	35.0	33.1	34.9
Eighth	35.5	39.2	45.5	36.8
<u>Race/Ethnicity</u>				
White	43.9	40.3	43.1	43.4
Hispanic	56.1	59.6	56.9	56.6
<u>Parent Education Level</u>				
College Graduate	42.3	37.5	46.3	42.1
High School Graduate	22.5	23.8	17.5	22.2
<High School Graduate	35.3	38.7	36.2	35.8
<u>Type of Work</u>				
Childcare	37.9	30.3	25.8	36.0
Restaurant	7.7	14.6	12.5	8.9
Retail	6.7	11.9	11.5	7.7
Yardwork	35.1	19.3	15.7	31.6
Construction	4.8	8.6	15.3	6.1
Agriculture	7.8	15.3	19.2	9.6

Overall Sample Size, N = 7420. Sample size for Injury Results, N = 2965 excludes non-workers and cases with missing data.

Table 4 : Univariate Odds Ratios for Work-Related Injury by Job, Work Intensity, Demographics

	Odds Ratio	P-value	95% Confidence Interval
<u>Kind of Job</u>			
Babysitting (referent)	1.0		
Restaurant	3.8	0.0000	(2.7, 5.4)
Retail	2.3	0.0000	(1.6, 3.3)
Yardwork	1.7	0.0000	(1.4, 2.2)
Construction	3.6	0.0000	(2.4, 5.2)
Farm/Ranch	4.4	0.0000	(3.3, 6.0)
<u>Weekly Hours Worked</u>			
1-10 Hours (referent)	1.0		
11-20 Hours	1.5	0.0039	(1.1, 1.9)
21+Hours	2.4	0.0000	(1.8, 3.2)
<u>Gender</u>			
Female (referent)	1.0		
Male	2.2	0.0000	(1.8, 2.6)
<u>Grade</u>			
Sixth (referent)	1.0		
Seventh	1.0	0.8501	(.82, 1.3)
Eighth	.93	0.5408	(.75, 1.2)
<u>Race/Ethnicity</u>			
White (referent)	1.0		
Hispanic	0.9	0.0968	(.71, 1.0)
<u>Parent Education</u>			
One or both attended college (referent)	1.0		
One or both graduated high school	0.92	0.4555	(.73, 1.2)
One or both did not graduate high school	0.97	0.7760	(.80, 1.2)

Table 5: Multivariate Odds Ratios for Work-Related Injury by Job, Work Intensity, Demographics

	Wald	P-value	Odds Ratio	95% Confidence Interval
<u>Kind of Job</u>	64.2	0.0000		
Babysitting (referent)			1.0	
Restaurant	31.2	0.0000	3.2	(2.1, 4.9)
Retail	4.9	0.0267	1.7	(1.1, 2.6)
Yardwork	2.4	0.1252	1.3	(.93, 1.9)
Construction	12.7	0.0004	2.4	(1.5, 3.8)
Farm/Ranch	35.3	0.0000	3.3	(2.3, 4.9)
<u>Weekly Hours Worked</u>	12.06	0.0024		
1-10 Hours (referent)			1.0	
11-20 Hours	1.2	0.2731	1.2	(.87, 1.6)
21+Hours	11.7	0.0006	1.8	(1.3, 2.6)
<u>Gender</u>				
Female (referent)			1.0	
Male	6.2	.0128	1.5	(1.1, 2.0)
<u>Grade</u>	.7329	.6932		
Sixth			1.0	
Seventh	.0746	.7847	.96	(.74,1.2)
Eighth	.6817	.4090	.90	(.61,1.2)
<u>Race/Ethnicity</u>				
White (referent)			1.0	
Hispanic	7.3	0.0070	0.8	(.61, .93)

Table 6: Type of Employment by Type of Injury Sustained While Working.

	Childcare	Restaurant	Retail	Yardwork	Construction	Farm/Ranch	Total
Type of Injury	N %	N %	N %	N %	N %	N %	N %
Broken bone	16 10.6	29 29.3	16 21.6	39 15.7	14 18.7	22 17.6	136 17.6
Shock/ Burn	17 11.3	25 25.3	24 32.4	28 11.2	7 9.3	14 11.2	115 14.9
Dislocation	8 5.3	12 12.1	8 10.8	20 8.0	10 13.3	13 10.4	71 9.2
Amputation	0 0.0	7 7.1	8 10.8	13 5.2	9 12.0	11 8.8	48 6.2
Puncture	38 25.2	15 15.2	10 13.5	68 27.3	13 17.3	26 20.8	170 22.0
Sprain	33 21.9	3 3.0	3 4.1	50 20.1	13 17.3	28 22.4	130 16.8
Bruise	39 25.8	8 8.1	5 6.8	31 12.4	9 12.0	11 8.8	103 13.3
<u>Total</u>	151 19.5	99 12.8	74 9.6	249 32.2	75 9.7	125 16.2	773 100.0

Table 7: Univariate and Multivariate Odds Ratios for Injury Requiring Medical Attention by Type of Job, Work Intensity, and Demographics

	Univariate			Multivariate			
	Odds Ratio	P-value	95% CI	Wald	Odds Ratio	P-value	95% CI
<u>Kind of Job</u>				15.77		.0075	
Babysitting (referent)	1.0				1.0		
Restaurant	5.5	.0000	2.9, 10.6	10.8	3.6	.0010	1.7, 7.8
Retail	2.8	.0041	1.4, 5.7	1.9	1.8	.1734	.77, 4.2
Yardwork	1.5	.1301	.88, 2.7	.21	1.2	.6478	.58, 2.4
Construction	2.3	.0182	1.2, 4.5	.57	1.4	.4509	.59, 3.3
Farm/Ranch	2.4	.0039	1.3, 4.4	2.9	2.0	.0900	.90, 4.1
<u>Weekly Hours Worked</u>				2.2		.3380	
1-10 Hours (referent)	1.0				1.0		
11-20 Hours	1.7	.0174	1.1, 2.6	.95	1.3	.3310	.76, 2.3
21+Hours	1.8	.0103	1.1, 2.7	1.7	1.5	.1942	.83, 2.6
<u>Gender</u>							
Female (referent)	1.0						
Male	1.7	.0000	1.2, 2.4	2.0	1.5	.1557	.87, 2.4
<u>Grade</u>							
Sixth	1.0						
Seventh	1.1	.6786	.74, 1.6				
Eighth	1.0	.9762	.68, 1.5				
<u>Parent Education Level</u>							
College Graduate	1.0						
High School Graduate	.85	.4673	.55, 1.3				
< High School Graduate	1.2	.3103	.85, 1.7				
<u>Race/Ethnicity</u>							
White (referent)	1.0				1.0		
Hispanic	1.8	.0116	1.2, 2.2	5.0	1.6	.0238	1.1, 2.4

Table 8: Weekly School Year Work Hours by Gender, Grade, Ethnicity and Parent Education

	Overall Sample N=5367 %	Weekly Work Hours, Current Job				Mean Hrs per week. Workers only
		No job n=2359 %	1-10 hrs n= 2382 %	11-20 hrs n= 365 %	21+hrs n= 261 %	
<u>Total</u>	100.0	44.0	44.4	6.8	4.9	7.7
<u>Gender</u>						
Male	48.9	38.0	46.9	8.5	6.6	8.27
Female	51.1	49.7	41.9	5.2	3.2	7.01
<u>Grade</u>						
Sixth	28.9	45.1	45.2	6.1	3.6	6.90
Seventh	34.7	43.5	45.0	6.9	4.6	7.57
Eighth	36.4	43.5	43.1	7.3	6.1	8.41
<u>Race/ethnicity</u>						
White	32.2	34.2	53.0	7.4	5.4	7.33
Hispanic	55.3	49.8	39.6	6.5	4.1	7.70
Other	12.5	42.9	43.5	6.5	7.0	8.75
<u>Parent Education</u>						
<High School	37.1	45.7	42.4	7.1	4.8	8.00
High School	22.7	45.2	43.9	7.1	3.8	7.38
College	40.2	41.6	46.5	6.3	5.5	7.59

Gender :  $\chi^2 = 102.0$ ,  $df = 3$ ,  $p = 0.000$

Grade :  $\chi^2 = 14.9$ ,  $df = 6$ ,  $p = <.05$

Ethnicity:  $\chi^2 = 119.0$ ,  $df = 6$ ,  $p = 0.000$

Parent Education :  $\chi^2 = 14.5$ ,  $df = 6$ ,  $p = <.05$

Table 9: Type of Job by Demographic Variables .

	Restaurant %	Retail %	Yard %	Childcare %	Construction %	Agriculture %
Overall Workers (N=3108)	8.6	7.3	30.5	37.5	6.0	10.0
<u>Characteristic</u>						
<u>Gender</u>						
Male	10.3	9.1	49.4	5.2	10.0	15.8
Female	6.7	5.3	9.2	73.8	1.3	3.6
<u>Grade</u>						
Sixth	8.4	7.6	34.3	34.7	6.0	8.9
Seventh	7.2	6.9	33.2	37.2	5.0	10.5
Eighth	10.2	7.5	25.0	39.8	7.0	10.5
<u>Race/ethnicity</u>						
White	5.3	5.6	32.4	40.2	4.5	12.1
Hispanic	10.3	8.9	29.0	36.0	7.0	8.8
Other	12.8	6.7	30.4	35.0	6.7	8.5
<u>Parent Education</u>						
<High School	9.3	8.5	27.0	39.8	7.6	7.8
High School	8.5	8.0	34.9	34.0	5.4	9.2
College Grad	8.1	6.0	31.1	37.3	5.0	12.4

Gender:  $\chi^2 = 1431.9$ ,  $df=5$ ,  $p<.001$

Grade:  $\chi^2 = 28.76$ ,  $df=10$ ,  $p<.01$

Ethnicity:  $\chi^2 = 52.76$ ,  $df=10$ ,  $p<.001$

Parent Education :  $\chi^2 = 35.13$ ,  $df=10$ ,  $p<.001$

Table 10: Reasons for working by Demographic Variables.

	Future College %	Living Expense %	Money %	Friend Related %	Positive Feeling %	Learn Responsibility %	Multiple Reasons %
Overall Workers (N=2996)	11.1	6.1	49.3	2.3	1.3	8.4	21.3
<u>Characteristic</u>							
<u>Gender</u>							
Male	13.0	7.5	49.8	2.5	1.5	7.1	18.7
Female	8.9	4.6	48.8	2.1	1.2	10.0	24.4
<u>Grade</u>							
Sixth	13.8	6.5	42.2	2.0	2.1	10.7	22.7
Seventh	10.3	6.2	52.0	1.9	.9	7.7	21.1
Eighth	9.9	5.8	52.3	2.9	1.2	7.4	20.5
<u>Race/Ethnicity</u>							
White	10.4	3.7	54.0	1.8	.8	6.6	22.7
Hispanic	11.2	7.7	46.8	2.8	1.4	9.7	20.5
Other	13.4	7.4	45.0	2.1	2.6	8.9	20.5
<u>Parent Education</u>							
<High School	11.0	7.4	46.6	2.6	1.8	9.6	21.1
High School Grad	10.6	7.0	50.2	2.1	.7	7.2	22.0
College	11.6	4.6	51.1	2.2	1.3	8.1	21.2

Gender:  $\chi^2 = 41.36$ ,  $df=6$ ,  $p<.001$ .

Grade:  $\chi^2 = 37.49$ ,  $df=12$ ,  $p<.001$

Ethnicity :  $\chi^2 = 47.12$ ,  $df=12$ ,  $p<.001$ .

Parent education :  $\chi^2 = 18.91$ ,  $df=12$ ,  $p=.1$

Table 11. Mean & Standard Deviation Hours of Nightly Sleep, Afterschool Days/week with Friends, Hours/Week of Extracurricular Activities, and Hours/Week of Homework by Weekly Work Hours for South Texas Middle School Students, 1995

	No Job		1-10 hrs/wk		11-20 hrs/wk		21+ hrs/wk	
	Mean	SD*	Mean	SD*	Mean	SD*	Mean	SD*
Overall								
	(n=2872)		(n=2779)		(n=418)		(N=271)	
Sleep Hrs								
Weeknight	7.4	1.8	7.4	1.8	7.0	2.0	6.8	1.9
Weekend	7.3	2.5	7.1	2.5	6.6	2.6	6.4	2.8
Extracurricular hrs/week								
School	4.8	6.6	5.9	7.4	7.4	8.6	8.2	9.3
Nonschool	2.8	3.6	3.7	4.0	4.2	4.5	4.5	5.0
Homework hrs/wk	2.1	2.0	2.4	2.1	2.4	2.2	2.3	2.3
Days w friends	2.7	1.9	3.0	1.8	3.1	1.9	3.1	1.9
6th Grade								
	(n=939)		(n=922)		(n=117)		(n=64)	
Sleep Hrs								
Weeknight	7.7	1.9	7.6	1.9	6.8	2.3	6.9	1.9
Weekend	7.5	2.4	7.3	2.5	6.6	2.5	6.5	2.7
Extracurricular hrs/week								
School	4.0	5.7	5.4	7.1	6.9	8.4	6.8	8.7
Nonschool	2.8	3.5	3.7	4.0	4.7	4.9	5.3	5.1
Homework hrs/wk	2.1	1.9	2.2	2.0	2.7	2.3	2.3	2.2
Days w friends	2.5	2.0	3.0	1.8	3.1	2.0	3.0	1.9
7th Grade								
	(n=989)		(n=940)		(n=151)		(n=86)	
Sleep Hrs								
Weeknight	7.4	1.8	7.3	1.8	7.0	1.9	6.7	2.0
Weekend	7.3	2.5	7.0	2.5	6.6	2.7	6.4	2.8
Extracurricular hrs/week								
School	5.1	6.7	6.0	7.5	7.1	8.1	9.7	9.8
Nonschool	2.7	3.4	3.6	3.9	3.8	4.2	5.2	5.6
Homework hrs/wk	2.0	2.0	2.3	2.1	2.0	2.1	2.6	2.6
Days w friends	2.7	1.9	3.0	1.8	2.9	1.7	3.2	1.9

	8th Grade							
	(n=944)		(n=917)		(n=150)		(n=121)	
Sleep Hrs								
Weeknight	7.2	1.7	7.2	1.7	7.0	1.8	6.7	1.9
Weekend	7.2	2.5	7.0	2.5	6.7	2.6	6.3	2.7
Extracurricular hrs/week								
School	5.3	7.3	6.3	7.5	8.1	9.1	7.9	9.1
Nonschool	2.9	3.8	3.8	4.1	4.2	4.5	3.5	4.4
Homework hrs/wk	2.1	2.0	2.6	2.2	2.6	2.1	2.2	2.2
Days w friends	2.8	1.9	3.0	1.8	3.2	1.8	3.1	1.9

\* SD standard deviation

Table 12 : Means of Dependent Variables for Each Work Intensity Level.

Variable	No Job Mean (a)	1-10 Hrs Mean (b)	11-20 Hrs Mean (c)	21+ Hrs Mean (d)	D*	P-value
<b>School Performance/Engagement (n=2972)</b>						
Homework Hours/Week	2.20(b,c)	2.49	2.55	2.50	.13	<.001
Grades Usually Made	5.24(c)	5.22	4.93	4.99	.15	<.01
Weekly Absences	.62 (c,d)	.67(c,d)	1.00	1.29	.40	<.001
Weekly Cheating	1.03(c,d)	1.07(c,d)	1.51(d)	1.93	.42	<.001
Frequency Class Sleeping	1.99(b,c,d)	2.12(c,d)	2.61	2.11	.47	<.001
Frequency School Tardies	1.97(c,d)	2.00(c,d)	2.31	2.40	.34	<.001
<b>Health Risk Behaviors (n=1904)</b>						
Days smoked past month	1.67(c,d)	1.75(c,d)	2.15(d)	2.79	.60	<.001
Cigarettes/day past month	1.59(c,d)	1.68(c,d)	2.05	2.50	.61	<.001
Days with snuff past month	1.10(c,d)	1.15(c,d)	1.38(d)	1.83	.63	<.001
Days with drink past month	1.66(c,d)	1.70(c,d)	2.19	2.54	.54	<.001
Days drunk past month	1.44(c,d)	1.50(c,d)	1.78	2.33	.57	<.001
Lifetime marijuana use	1.48(c,d)	1.53(c,d)	1.95	2.58	.60	<.001
Lifetime cocaine use	.08(c,d)	.09(c,d)	.16	.19	.38	<.001
Lifetime inhalant use	.14(c,d)	.16(c,d)	.25	.30	.54	<.001
Lifetime steroid use	.55	.50	.54	.61	.00	Ns
Lifetime needle use	.07(c,d)	.07(c,d)	.13	.15	.41	<.001
Fruits/vegetables yesterday	4.73(b,c,d)	4.81	4.72	4.73	.006	Ns
Fat yesterday	5.43(b,c,d)	5.76	5.64	5.49	.03	<.001
Exercise past week	4.22(b,c,d)	4.82	4.96	4.90	.29	<.001
<b>Physical/ Mental Health Concerns (n=5059)</b>						
Hours weeknight sleep	7.41(c,d)	7.41(c,d)	6.98	6.87	.29	<.001
Hours weekend sleep	7.33(c,d)	7.15(c,d)	6.59	6.43	.35	<.001
Frequency of headaches	2.87(c,d)	2.92(d)	3.07	3.13	.24	<.001
Frequency of minor illness	2.39	2.35	2.42	2.49	.10	Ns
Frequency of stress	2.97(c,d)	3.03	3.20	3.28	.26	<.001
<b>Social / Extracurricular Activities (n=5229)</b>						
Satisfaction w/ leisure time	3.13(c,d)	3.05	2.92	2.90	.16	<.01
Days with friends	2.69(b,d)	3.03	3.01	3.12	.23	<.001

- D statistics = magnitude of difference between 1-10 hr/wk and 21+ hr wk workers.
- Letters (a,b,c,d) indicate significantly different post-hoc Scheffe means, e.g., for homework, nonworkers are significantly different from 1-10 hr/wk and 11-20 hr/wk workers at  $p < .001$ .
- Wilks Lambda for the multivariate tests for: School Performance and Engagement 12.6,  $p < .001$ ; Risk Behaviors 4.9,  $p < .001$ ; Physical and Mental Health 5.6,  $p < .001$ ; and Social and Extracurricular Activities 9.3,  $p < .001$ .
- P-value indicates significant univariate variables in overall MANCOVA even though corresponding Scheffe may be non-significant.
- Note: sample size varies due to cases containing missing information.

*List of possible future publications:*

The Prevalence and Patterns of School-Year Employment in South Texas Middle School Students

The Prevalence and Patterns of Occupational Injury in Working Middle School Students in South Texas

The Effects of School-Year Employment on Academic Factors, Health Risk Behaviors, Physical/Mental Health Concerns and Social Lives of South Texas Middle School Students

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## Memorandum

Date: May 10, 2001

From: Roy M. Fleming, Sc.D., Director, Research Grants Program RMA  
Office of Extramural Programs, NIOSH, D30

Subject: Final Report Submitted for Entry into NTIS for Grant 1 R03 OH003786-01.

To: William D. Bennett  
Data Systems Team, Information Resources Branch, EID, NIOSH, P03/C18

The attached final report has been received from the principal investigator on the subject NIOSH grant. If this document is forwarded to the National Technical Information Service, please let us know when a document number is known so that we can inform anyone who inquires about this final report.

Any publications that are included with this report are highlighted on the list below.

Attachment

cc: Sherri Diana, EID, P03/C13

List of Publications *none*

## NIOSH Extramural Award Final Report Summary

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**Title:** On-the-Job Injury in South Texas Middle School Children  
**Investigator:** Sharon P. Cooper, Ph.D.  
**Affiliation:** University of Texas  
**City & State:** Houston, TX  
**Telephone:** (713) 500-9460  
**Award Number:** 1 R03 OH003786-01  
**Start & End Date:** 9/30/1998–9/29/2000  
**Total Project Cost:** \$72,770  
**Program Area:** Traumatic Injuries  
**Key Words:**

### **Abstract:**

The extent and nature of the work experience of middle school students has not yet been documented in the scientific literature, although many children and early adolescents report working for pay before high school. The predominant aim of this study, therefore, was to examine the work experience of middle school students by exploring the relationship between employment and work-related injury, certain academic factors, social factors, and other mental and physical health factors, including risk behaviors. A second aim was to document the prevalence and patterns of employment in this sample which was primarily composed of lower-income, Hispanic students whose early employment circumstances are not well understood.

Pre-existing work-related data from 7,420 South Texas middle school students were analyzed. Preliminary evidence suggests that very young workers (especially poor, minority youth) may be at risk for adverse work-related effects, including on-the-job injuries. Results indicate that 25% of employed students reported having ever experienced an occupational injury. Of the injured, 30% required medical help. A dose response effect was observed where increasing weekly work hours were significantly related to work injury. Types of jobs associated with work-related injury were restaurant work, agriculture, construction, and retail work. Restaurant work was associated with injury requiring medical help. The overall prevalence of employment was 56%. Three-quarters of workers were employed 1-10 hours weekly. Employed students worked an average 5 of 8 hours weekly. Middle school students were more likely to work in childcare and yardwork than in other types of jobs. About half of students reported working to earn spending money. Working longer hours weekly was associated with using several substances, decreased sleep, increased stress and frequency of having headaches, and dissatisfaction with amounts of leisure time. Working more than 10 hours weekly was also correlated with poorer school performance and school disengagement. An important addition to the literature is our finding that Hispanic middle schoolers experience fewer job-related injuries compared to whites, but are at greater risk of more serious injury than whites. Also, we substantiated the findings of other occupational injury studies of older youth regarding the prevalence of youth injury and several subgroup differences within that prevalence, i.e., that males are more frequently injured at work than females. However, we found no evidence that low-income, Hispanic youth were at greater injury risk than middle schoolers with better financial standing.

Further investigation is needed to examine the impact of school-year work on youth functioning and to develop interventions to reduce work-related injuries in this population. Parents and professionals should monitor the number of hours of weekly work of middle school children.

**Publications**

No publications to date.