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Relationship Between Extent of Extracurricular Participation, Employment, and Substance Use Among Middle and High School Students

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Relationship Between Extent of Extracurricular
Participation, Employment, and Substance Use
Among Middle and High School Students

by

Lynn Hunt Long

A dissertation submitted
to the Doctoral Program Faculty
in partial fulfillment of the requirements
for the degree of

Doctor of Education
in Educational Leadership

UNIVERSITY OF NORTH FLORIDA
COLLEGE OF EDUCATION AND HUMAN SERVICES

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This Doctoral Dissertation is Dedicated

To

Emma and Abby

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Abstract

This study examined the relationship between student use of substances and extent of participation in school and/or community sponsored sport or nonsport activity. The study also examined student substance use and extent of participation in sport or nonsport activity together with extent of employment.

Data were provided by 24,699 public school youths who attended grades 6 through 12 and completed the *2001-2002 Duval Secondary Substance Use and Violence Survey: Knowledge, Attitudes, and Behaviors*. Frequency tables, crosstabulation, chi-square tests, and loglinear analysis were used to analyze the data.

The study found: (a) a higher percentage of respondents who participated in 11 or more hours of sport/athletic activity or nonsport activity reported using substances almost every day than did respondents who participated in 1-5 hours of activity; (b) a higher percentage of students reported using alcohol almost every day when involved in greater than 20 hours of work per week and 11 or more hours of sport/athletic or nonsport participation than did those with lesser involvement in activity in conjunction with work at any level.

Extracurricular programs and student employment may function as protective factors in discouraging adolescent substance use. Extracurricular programs and student employment may also place the student at greater risk for substance abuse when such involvement exceeds 20 hours per week in work and more than 11 hours per week of extracurricular activity.

While extracurricular programs and student employment should be designed and offered to encourage widespread student participation, extent of participation should be monitored to assure healthy participation.

Chapter One

Introduction

Substance use among young people has been an issue of powerful and continuing interest and public concern for decades. Use of licit and illicit drugs among youth raises concern, not only about potential health risks but also about the potential for adolescents significantly and negatively altering their lives and the lives of their families and communities.

The 2003 National Survey on Drug Use and Health revealed an estimated 10.9 million Americans 12 to 20 years of age reported current use of alcohol in the month prior to the survey interview in 2003 (Substance Abuse and Mental Health Services Administration, 2004). Of these, nearly 7.2 million (19.2%) respondents in this age group reported binge drinking (five or more drinks on the same occasion at least once in the 30 days prior to survey), and 2.3 million (6.1%) reported heavy drinking (five or more drinks on the same occasion on at least five different days in the past 30 days). Among youth aged 12 to 17 an estimated 12.2% reported current cigarette use, and an estimated 11.2% of

respondents in this age group reported current illicit drug use.

In efforts to gain understanding of adolescent substance use and to develop the most effective means of helping adolescents avoid substance use, researchers have examined personal, familial, peer, educational, and community characteristics. The search for one causal influence to account for youthful drug use has always failed (Newcomb, Maddahian, Skager, & Bentler, 1987).

One avenue of investigation into adolescent substance use has been risk and protective factor research. Risk factors include those individual characteristics or social environments associated with increased likelihood of substance use (Lane, Gerstein, Huang, & Wright, 2001). Protective factors are related to decreased likelihood of substance use or of nonuse (Lane et al.). Protective factors can balance and buffer the risks and increase resilience ("Substance Abuse: Predicting It, Preventing It," 2001). The common domains of risk and protective factors include community, family, individual, peer, school, and general (Lane et al.).

According to the Florida Department of Children and Families (2000), the analysis of risk and protective factors is the most powerful paradigm for understanding the

genesis of both positive and negative adolescent behavioral outcomes. The idea of identifying protective processes or specifying particular interactions that produce an enduring shield or resilience in the face of risk for negative outcomes has direct relevance for risk-focused drug abuse prevention (Hawkins, Catalano, & Miller, 1992). It suggests that the goals of risk-focused prevention may be accomplished both through direct efforts at risk reduction and through the enhancement of protective factors that moderate or mediate the effects of exposure to risk (Hawkins et al.).

Though research has advanced knowledge and has made contributions to prevention efforts, research findings have been inconsistent. The complex matter of substance use among our youth is not completely understood, and use, though with varying trends, persists.

Many aspects of adolescent substance use have been studied, but examination of the relationship between the extent of participation as measured in hours spent in school sponsored and/or community sponsored sport/athletic activity and school sponsored and/or community sponsored nonsport activity and reported substance use among middle and high school students has been limited. Examination of the relationship, if any, between substance use and both

hours spent participating in sport and/or nonsport activity and hours employed has been even more limited.

There is a need for identifying and better understanding adolescent risk and protective factors and how these interrelate with substance use. There is also a need to identify the level, if any, at which a factor moves from one classification to the next, such as a protective factor becoming a risk factor. This line of investigation has been understudied.

This study examined the relationship between students' reported use of substances and hours per week spent participating in school sponsored and/or community sponsored sport/athletic activity and school sponsored and/or community sponsored nonsport activity. The study also looked at reported substance use and extent of student participation in sport and/or nonsport activity as measured in hours per week together with hours of employment.

While substance use among adolescents is complex, and unraveling the intricacies of the relationship among variables of risk and protection with substance use may seem insuperable, the importance of increased understanding is unquestionable. The problem of substance use among our youth persists, and new issues continue to arise. Better understanding of the numerous risk and protective factors

associated with substance use and nonuse allows for the development and implementation of viable strategies to increase the potential for all adolescents to lead healthy, drug-free lives.

Overview of the Problem

Substance use among adolescents is a national multifaceted problem that cuts across age, gender, ethnicity, socioeconomic status, and family structure. By late adolescence, attitudes about taking risks and patterns of drug-using behavior have developed (Bachman, Wadsworth, O'Malley, Johnston, & Schulenberg, 1997). As cited in Stein, Newcomb, and Bentler (1987), drug use in late adolescence has accounted for about 60% of the variance of drug use in young adulthood.

The massive upsurge in illicit drug use during the last thirty or thirty-five years has proven to be a youth phenomenon, and the "relapse" in the drug epidemic in the early 1990s occurred almost exclusively among adolescents (Johnston, O'Malley, & Bachman, 2002b). From one year to the next, particular drugs rise or fall in popularity, and related problems occur for youth, their families, governmental agencies, and society as a whole (Johnston et al.).

Assessing substance use and factors associated with use among adolescents is a continuing need as long as the problem persists. It is vital to identify adolescent risk and protective factors and understand how these interrelate with substance use in order to maximize prevention efforts.

Efforts of the Federal Government

The Federal government has been a prominent force in evaluating prevalence of adolescent substance use and administering, coordinating, and recommending policy for drug prevention programs. On October 27, 1986, President Ronald Reagan signed the Drug-Free Schools and Communities Act of 1986 (P.L.99-570) into law, which originated out of the concern of the Congress that there was a need for substance abuse prevention education in our Nation's schools. The efforts of Nancy Reagan, and the death of Len Bias, star basketball player at the University of Maryland, were also factors that influenced the climate at the time the bill came up and was passed into legislation. The Safe and Drug-Free Schools and Communities Act (Title IV) is the 1994 reauthorization of the 1986 original Drug-Free Schools and Communities Act. This legislation has been amended. One change in regulation was on July 1, 1998, when the Principles of Effectiveness became a part of the 1994 Safe and Drug-Free Schools and Communities Act. The Principles

of Effectiveness, or accountability measures, requires each school district to conduct a needs assessment, have measurable goals and objectives, employ research-based programs, and complete program evaluations. In December of 2001, the No Child Left Behind Legislation was passed, which continued the Safe and Drug-Free Schools and Communities Act and institutionalized the accountability measures, the Principles of Effectiveness. The overview of the chronology and accountability requirements of the Safe and Drug-Free Schools and Communities program was provided by David Quinlan, Program Officer in the Office of Safe and Drug-Free Schools, U.S. Department of Education in Washington, D.C. (personal communication, February 12, 2003).

Safe and Drug-Free Schools and Communities Act Funding and Accountability

The Safe and Drug-Free Schools and Communities Act provides the largest Federal source of funding for school-based drug and violence prevention programs (RTI International, n.d.). As Duval County, Florida, was the setting for this study, the allocation of the Safe and Drug-Free Schools and Communities Act funds for the State of Florida was of note. The Florida Department of Education administers the Federal Safe and Drug-Free Schools funds to

Florida local education agencies to provide alcohol, tobacco, and other drug prevention education and violence prevention initiatives (Florida Department of Education, 2002). At the beginning of the 2000-2001 project period, the Florida local education agencies (67 school districts, four university laboratory schools, and the Florida School for the Deaf and Blind) were allocated \$10,409,376 for their Safe and Drug Free Schools programs, and seven districts also received Safe and Drug-Free Schools set-aside allocations totaling \$4,444,760 to address special prevention needs (Florida Department of Education).

Title IV, Improving America's School Act of 1994, requires that funds be spent for comprehensive alcohol, tobacco, and other drug use prevention and violence prevention initiative that benefits all students in all grades (Florida Department of Education, 2002). Since July 1, 1998, the U.S. Department of Education requires that the local education agencies receiving Safe and Drug-Free School funds implement the Principles of Effectiveness. The four principles require: (a) thorough assessment of needs, (b) measurable goals and objectives, (c) programs for youth based on research or evaluation, and (d) periodic evaluation (Florida Department of Education).

Adolescent Substance Use Research

Survey research has been the primary means of gathering information on adolescent substance use. Data play a pivotal role in analyzing and improving policies and programs aimed to reduce substance use behaviors among adolescents, which correlate with Federal monies allocated for prevention efforts.

The National Household Survey on Drug Abuse (NHSDA), conducted by the Federal Government since 1971, is the primary source of statistical information on the use and correlates of illicit drugs, alcohol, and tobacco in the civilian, noninstitutionalized U.S. population 12 years of age or older (Lane et al., 2001). This survey has a particular emphasis on adolescents 12 to 17 years of age (Lane et al.). In the 1997 NHSDA, a module was added for 12 to 17 year olds to examine risk and protective factors related to substance use, with factors combined into one of five domains: community, family, peer/individual, school, and general (Lane et al.). Data is analyzed using cross-tabulations, odds ratios, and multivariate methods.

Monitoring the Future: A continuing study of American youth is conducted at the University of Michigan's Institute for Social Research and has been funded since it's inception in 1975 through a series of investigator-

initiated research grants from the National Institute on Drug Abuse (Johnston et al., 2002b). The Monitoring the Future survey of secondary school students is an ongoing study that examines the prevalence of drug use among American secondary school students in 8th, 10th, and 12th grades, and examines hundreds of correlates of drug use by those students (Johnston et al.). Descriptive and inferential statistical methods are used to analyze the data.

Multiple research and evaluation studies are conducted throughout the State of Florida to assess student reported substance use, measure needs, and evaluate substance education, prevention, and interdiction. These include state, regional, school district, and university research projects.

The setting for this study was Duval County, Florida, public schools. Efforts to assess adolescent substance use in Duval County have been ongoing since 1987, consequent to the findings of a study conducted by the Jacksonville Community Council Inc. This community study indicated a high incidence of mental health and drug abuse problems among Jacksonville youth and reported that the severity of the problem coupled with too little money to provide services to meet the need for treatment and prevention

programs demanded community action (Jacksonville Community Council Inc., 1986). The Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge, Attitudes, and Behaviors (Wilburn & Wilburn, 2002) has been the primary survey instrument used in conducting the ongoing community-wide assessment of adolescent substance use. The survey was designed to provide district staff with information needed for program planning, resource allocation, and program evaluation. Descriptive statistical methods have been used to analyze the data.

Summary of the Problem

While many aspects of adolescent substance use have been studied, and annual national, state, and local surveys conducted, examination of the relationship between the variables of this study and reported substance use among middle and high school students has been limited. The primary variables of interest for the study included (a) hours per week participating in school and/or community sponsored sport/athletic activity, (b) hours per week participating in school and/or community sponsored nonsport activity, and (c) hours per week participating in school and/or community sponsored sport and/or nonsport activity together with hours employed after-school and/or on weekends.

There is a need for identifying and better understanding adolescent risk and protective factors and how these interrelate with substance use. The need extends to identifying the level, if any, at which a factor transfers from one classification to the next, such as a protective factor becoming a risk factor.

Statement of Purpose

The purpose of this study was to examine the relationship, if any, between students' reported use of substances including cannabis, depressants, hallucinogens, inhalants, narcotics, steroids, stimulants, misuse of prescription drugs and/or over-the-counter drugs, and extent of participation in school sponsored and/or community sponsored sport and athletic activity and school sponsored and/or community sponsored nonsport activity. This study also looked at reported substance use and extent of student participation in sport and/or nonsport activity together with extent of employment. Student grade level, student gender, and student race/ethnicity were examined as moderator variables.

Setting and Population for This Study

This study was conducted using data collected for an annual survey of knowledge, attitudes, and behaviors for substance use and violence in the Duval County, Florida,

public school district. The total number of students in the county's secondary grades (6-12) for the 2001-2002 school year was 47,586. Student ethnicity for all Duval County public schools was 48% White, 43% Black, 4% Hispanic, 3% Asian, and 2% Other. The graduation rate was 61.0%, and the dropout rate was 5.7%.

Significance of Research

The question as to whether participation in extracurricular activity and employment is beneficial or detrimental to student development and performance is of continuing interest to many stakeholder groups. In this era of limited financial resources for schools and heightened perception of the need for accountability in school programs, examination of the effects of extracurricular activities has become particularly important (Holland & Andre, 1987). Moreover, degree of activity involvement has often been ignored in studies of extracurricular participation (Holland & Andre). With regard to student employment, the fact that the majority of adolescents are employed in paying jobs at some time while they are attending high school presents additional challenges for educators (Mortimer & Johnson, 1998), as well as for parents, and adolescents themselves. Much of the concern about employment of adolescents derives from a fear that

working draws students away from school, promotes behaviors that interfere with learning, and reduces investment in homework and academic achievement (Mortimer & Johnson).

This study examined the relationship between the surveyed secondary students' reported use of substances (dependent variable) and the extent of participation in extracurricular activity (independent variables). This study also looked at the relationship between reported substance use and extent of participation in extracurricular activity together with extent of employment (independent variables). The use of crosstabulation, chi-square test, and loglinear analysis were conducted to test the variables stated in the research questions and their interactions for statistical significance.

This study provides notable information to policy makers, educational administrators, student services personnel, and community leaders for developing and offering program opportunities to middle and high school students that provide the greatest protective effects against substance use. The study contributes to understanding the effects of hours involved in extracurricular activity together with hours employed on use of licit and illicit substances. A better understanding is needed to guide development of effective policies and

practices relevant to such activities and substance use prevention. The study also provides reference for policy makers and educational leaders who are accountable for school districts with similar demographics.

This research adds to the broad body of knowledge in the area of adolescent substance use. The data can be compared to national reports of secondary school students' substance use and risk and protective factors associated with substance use and nonuse. In addition, the study's variables, statistical methods, and findings can be compared to previous and/or future studies with reference to the participating county.

Definition of Terms

Employment:

Activity or work in which one engages for another, usually for wages. This study will look at after school and/or weekend employment.

Extracurricular activity:

An extracurricular or extra school activity is defined as an activity or function not falling within the scope of the regular curriculum, usually connected with the school, and carrying no academic credit (Mish et al., 1986).

A school sponsored extracurricular activity is supported by the school district. This study also

considered community sponsored extracurricular activity, which are supported by community organizations, with nonschool association.

Some examples of extracurricular activities are sport and athletic activity and nonsport activity such as church or other youth groups, clubs, music, and scouting.

Factors of protection/protective factors:

Individual characteristics or social environments related to decreased likelihood of substance use or of nonuse (Lane et al., 2001).

Factors of risk/risk factors:

Individual characteristics or social environments associated with an increased likelihood of substance use (Lane et al., 2001).

Factors related to both protection and risk:

Parental/family attitudes about substance use, individual perceptions of risk of substance use and delinquent behaviors, friends' substance use and attitudes toward substance use, knowledge about the effects of drugs, school grades achieved, activity participation, and intensity of religious beliefs and observance.

Resilience:

An ability to recover from or adjust easily to misfortune or change (Mish et al., 1986).

Substance use:

Consumption/usage of cannabis, depressants, hallucinogens, inhalants, narcotics, misuse of over-the-counter drugs, misuse of prescription drugs, steroids, stimulants. Appendix A, the research instrument, provides a definitive list of substances surveyed, and Appendix B describes the classes of the licit and illicit substances to be considered in the study, with the effects of use.

Research Questions

The primary research question concerned the relationship, if any, between students' reported use of substances and the extent of participation in sport and nonsport activity and extracurricular activity together with employment. Substances examined included alcohol, tobacco, marijuana, hashish, inhalants, amphetamines, barbiturates, cocaine, club drugs, depressants, hallucinogens, heroin, ketaminehydrochloride, LSD, methamphetamines, narcotics, rohypnol, anabolic steroids, tranquilizers, misuse of prescription drugs i.e. Ritalin, and/or over-the-counter drugs.

The research questions of this study were:

1. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student grade level?
2. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student gender?
3. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student race/ethnicity?
4. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student grade level?
5. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored

- nonsport activity by student gender?
6. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student race/ethnicity?
 7. Is there a statistically significant relationship between the number of hours a secondary school student participates in school sponsored and/or community sponsored sport and athletic activity together with hours employed after school and/or on weekends and the students' self-reported substance use?
 8. Is there a statistically significant relationship between the number of hours a secondary school student participates in school sponsored and/or community sponsored nonsport activity together with hours employed after school and/or on weekends and the students' self-reported substance use?

Dependent Variable

The dependent variable for this study was the students' self-report of use of cannabis, depressants, hallucinogens, inhalants, narcotics, misuse of over-the-counter drugs, misuse of prescription drugs, steroids, and

stimulants. Appendix A, the survey instrument, provides a definitive list of substances included. Appendix B describes the classes of the licit and illicit substances considered in the study, with the effects of use. This variable is a categorical variable with an ordinal level of measurement. The survey categories for frequency of use were "I have never used in my life," "I have tried once or twice, but I do not use regularly," "I have used in the past 30 days," "I use almost every week," "I use almost every day."

Independent Variables

The independent variables for this study were hours of participation per week in school sponsored and/or community sponsored sport and athletic activity, school sponsored and/or community sponsored nonsport activity such as clubs, music, church or other youth groups, and school sponsored and/or community sponsored sport and/or nonsport activity together with after school and/or weekend employment. The independent variables are categorical variables with an ordinal level of measurement. The survey categories identifying student participation in school sponsored and/or community sponsored sport and athletic activity were "none, I am not in an organized sport," "1-5 hours per week," "6-10 hours per week," "11 or more hours per week."

The survey categories identifying student participation in school sponsored and/or community sponsored nonsport activity were "none, I do not participate," "1-5 hours per week," "6-10 hours per week," "11 or more hours per week." The survey categories identifying student employment were "no, I do not have a job," "yes, I work 5-10 hours per week," "yes, I work 11-20 hours per week," "yes, I work more than 20 hours per week."

Moderator Variables

The moderator variables for this study included (a) homeroom grade level, which is a categorical variable with an ordinal level of measurement; (b) student gender, which is a categorical variable with a nominal level of measurement; (c) student race/ethnicity, which is a categorical variable with a nominal level of measurement.

Methodology

The focus of this study was Duval County, Florida, a large, urban, southeastern school district. The total number of students in the county's secondary grades (6-12) was 47,586, and the total number of completed valid surveys was 24,699, or 51.9% of the available population. The Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge, Attitudes, and Behaviors (Wilburn & Wilburn, 2002), among other variables, questions frequency of use of

22 separate substances and is distributed in middle schools and high schools. The survey has been used in parts of Florida, as well as in other states. Permission was secured to include variables of interest for this study on the 2001-2002 survey. SPSS 10.0 was used for crosstabulations and chi-square tests. SAS 9.1 was used for loglinear analysis. Analyses were conducted to test the variables and their interactions for statistical significance. The alpha level was set at .05.

Organization of the Study

Chapter One has provided an overview of the study. An introduction to the complex issue of substance use among adolescents including risk and protective factors associated with use and nonuse of substances was presented. The chapter provided a description of national, state, and local research efforts to gain a better understanding of adolescent substance use. This chapter also presented the overview and statement of problem, statement of purpose, setting for this study, significance of the research, definition of terms, research questions, the study variables, and an overview of the study methodology.

Chapter Two presents a review of professional literature related to the domains of the knowledge base that inform this study. The areas reviewed include:

(a) adolescence and factors of risk and protection, (b) adolescent substance use and nonuse, (c) adolescent participation in school sponsored and/or community sponsored extracurricular activity, (d) adolescent participation in school sponsored and/or community sponsored athletic activity, (e) adolescent participation in extracurricular activity together with after-school and/or weekend employment.

Chapter Three presents the design, subjects, instrument, and methods of the study. The delimitations and limitations are also described.

Chapter Four presents the analysis of data. The findings, conclusions, and recommendations close the study in Chapter Five.

Chapter Two

Literature Review

This review of the research literature includes past and present investigations related to five domains of the knowledge base that inform this study. For that reason, this chapter is divided into the following sections:

1. Adolescence and factors of risk and protection
2. Adolescent substance use and nonuse
3. Adolescent participation in school sponsored and/or community sponsored extracurricular activity
4. Adolescent participation in school sponsored and/or community sponsored sport and athletic activity
5. Adolescent participation in extracurricular activity together with after-school and/or weekend employment.

Adolescence and Factors of Risk and Protection

At the turn of the century, *The Encyclopaedia Britannica* (1910-1911) defined adolescence as the period between childhood and maturity during which the characteristics - mental, physical, and moral - that are to

make or mar the individual disclose themselves and then mature, in some cases by leaps and bounds, in others by more gradual evolution. The 1998 publishing of *The New Encyclopaedia Britannica, Micropaedia*, describes adolescence as the transitional phase of growth and development between childhood and adulthood, with Western societies understanding adolescence in terms of encompassing psychological, social, and moral terrain as well as the physical aspects of maturation.

While the general definition of adolescence has essentially remained the same, the conceptualization of adolescence has changed. Formerly viewed as a time of high risk when negative behavior must be managed and deleterious consequences minimized, adolescence is now seen as an opportunity for growth and enhancement (Muller & Frisco, 1998).

The focus of adolescent research in the 1930s and 1940s dealt largely with the physical and physiological changes occurring during the adolescent years (Borman & Schneider, 1998). Such physical and physiological changes that occur during puberty include: (a) an acceleration of skeletal growth followed by a deceleration of skeletal growth, which results in dramatic increases in height and weight; (b) a change in body composition and distribution

of fat and muscle; (c) the development of the circulatory and respiratory systems, resulting in greater strength and endurance; (d) maturation of the reproductive organs and secondary sexual characteristics; and (e) changes in the nervous and endocrine systems, which regulate and coordinate pubertal events (Kazdin, 2000). From a biological perspective, many functions have been shown to reach peak efficiency during the teenage years; speed, strength, reaction time, and memory reach their peak (Csikszentmihalyi & Schmidt, 1998; Wolman, 1998).

In addition to the physical changes that occur during the teenage years, adolescents experience development in other domains. Research on cognitive development suggests that there are integrated, multilevel changes in thinking that occur during adolescence (Graber & Petersen, 1991). According to Kazdin (2000), cognitive changes during this developmental period involve increases in adolescents' ability to think abstractly, consider the hypothetical as well as the real, engage in more sophisticated and elaborate information processing strategies, consider multiple dimensions of a problem at once, and reflect on oneself and complicated problems. There emerges a marked increase in peer focus and involvement in peer-related social, sports, and other extracurricular activities

(Kazdin). There is no doubt that parent-child relations change during adolescence (Kazdin). The most optimal adjustment occurs among adolescents who are encouraged by their parents to engage in age-appropriate autonomy while maintaining strong ties to their family (Lerner & Galambos, 1998). According to Csikszentmihalyi and Larson (1986), the negative emotions for teenagers last half as long as they do for adults, indicating the capacity for resilience. A search for freedom and increasing self-confidence and self-consciousness are characteristic of this phase of development (Eysenck, Arnold, & Meili, 1972). Adolescence is a natural quest for independent identity (Gall, 1996).

During the last half of the 20th century, emphasis on adolescent research was less on biological and physiological changes during this developmental stage and more on the problems young people encountered in a rapidly changing society (Borman & Schneider, 1998). According to Borman and Schneider, the strategies employed by adolescents to cope with these problems were also a focus of the research literature. Since the mid-1900s, a number of societal changes have been influential in the lives of adolescents. These include change in family structure and function, greater educational opportunities with delayed entrance to full-time work, technological advancements

(television, internet), substance use, AIDS, teen pregnancy, and victimization in crimes. Most recently, school violence and acts of terrorism have emerged as significant influences on the lives of adolescents.

With complex social systems come tribulations and inherent limitations, which result in the teenage years being the most stressful rather than the most fulfilling period of one's life (Csikszentmihalyi & Schmidt, 1998). This has led to the understanding that adolescence cannot be viewed apart from social change (Borman & Schneider, 1998). According to Petersen (1988), adolescence may be described as a phase of life beginning in biology and ending in society.

Adolescence is a time for multiple biological, psychological, and cognitive changes, as well as social challenges and changes. Why do some adolescents develop substance abuse problems, whereas others grow to healthy adulthood?

In efforts to both gain understanding of adolescent substance use and develop the most effective means of helping adolescents avoid substance use, researchers have examined personal, familial, peer, educational, and societal characteristics. The search for one causal

influence to account for youthful drug use has always failed (Newcomb et al., 1987).

Risk and protective factors related to adolescent substance use have been the focus of numerous research studies (Dunn, Kirisci, Switala, & Tarter, 2001; Hawkins et al., 1992; Jessor, 1992; Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995; Johnston et al., 2002b; Lane et al., 2001; Lerner & Galambos, 1998). Risk factors include those individual characteristics or social environments associated with increased likelihood of substance use, while protective factors are related to decreased likelihood of substance use or of nonuse (Lane et al.), which can balance and buffer the risks and increase resilience ("Substance Abuse: Predicting It, Preventing It," 2001). Current knowledge about the risk factors for drug abuse does not provide a formula for prevention, but it does point to potential targets for preventive intervention (Hawkins et al.).

Risk factors for drug abuse in adolescence and early adulthood can be roughly divided by societal and cultural (contextual) factors and factors that lie within the individuals and their interpersonal environments (Hawkins et al., 1992). Hawkins' et al. review of the research identified 17 antecedents of adolescent drug abuse. These

are: (a) laws and norms favorable toward drug abuse, (b) availability of drugs, (c) extreme economic deprivation, (d) neighborhood disorganization, (e) physiological factors, (f) family alcohol and drug behavior and attitudes, (g) poor and inconsistent family management practices, (h) family conflict, (i) low bonding to family, (j) early and persistent problem behaviors, (k) academic failure, (l) low degree of commitment to school, (m) peer rejection in elementary grades, (n) association with drug-using peers, (o) alienation and rebelliousness, (p) attitudes favorable to drug use, and (q) early onset of drug use.

Petraitis, Flay, Miller, Torpy, and Greiner (1998) reviewed findings from studies of illicit substance use among adolescents and arranged the findings according to types and levels of influence. Petraitis et al. identified types of influence as social, attitudinal, and intrapersonal, and levels of influence as ultimate, distal, proximal, and immediate. Social influences represent characteristics in adolescents' immediate social settings such as schools, neighborhoods, families, and friendship groups. These contribute to illicit substance use by shaping adolescents' perceptions of the social norms and social pressures concerning illicit substance use. Social

predictors include aspects of the adolescents' home environment (ultimate-level), social bonds and models (distal-level), and perceptions of illicit substance use (proximal-level). Attitudinal predictors include aspects of the community environment (ultimate-level), personal values and deviant behaviors (distal-level), and adolescents' attitudes toward illicit substance use (proximal-level). Intrapersonal predictors of illicit substance use focus on fundamental demographic characteristics and personality traits (ultimate-level), affective states (distal-level), and adolescents' substance-specific self-efficacy (proximal-level). Petraitis et al. also identified substance-specific intentions and prior substance use behaviors as precursors of adolescent illicit substance use.

Because some risk factors for drug abuse may be resistant or impossible to change, the results of research on protective factors are important for prevention policy (Hawkins et al., 1992). Protective factors are related to decreased likelihood of substance use or of nonuse (Lane et al., 2001), which can balance and buffer the risks and increase resilience ("Substance Abuse: Predicting It, Preventing It," 2001). The idea of identifying protective processes or specifying particular interactions that

produce an enduring shield or resilience in the face of risk for negative outcomes has direct relevance for risk-focused drug abuse prevention (Hawkins et al.). It suggests that the goals of risk-focused prevention may be accomplished both through direct efforts at risk reduction and through the enhancement of protective factors that moderate or mediate the effects of exposure to risk (Hawkins et al.).

The concept of risk and protective factors relating to adolescent substance use is complex, and while many variables have been studied, examination of the relationship, if any, between the extent of student participation in extracurricular activity and employment and reported substance use has been limited. Identifying these variables as risk and/or protective factors, as well as identifying the level, if any, at which a factor transfers from one classification to the next, such as a protective factor becoming a risk factor, will provide direct relevance for drug abuse prevention. The goal of prevention science is the prevention of health problems achieved through the reduction of risk factors and increase in protective factors (Hawkins, Van Horn, & Arthur, 2004). Better understanding of protective factors is especially opportune in this time of limited financial

resources for school programs and heightened perception of the need for accountability in school programs.

In sum, regardless of one's conceptualization of adolescence, this time is considered a critical period of transition when youths' choices and behaviors will have consequences for future success and opportunity (Muller & Frisco, 1998). The search to determine why some adolescents never use licit and illicit substances, while others experiment with substance use, and still others regularly use and misuse these substances is ongoing. Risk and protective factor research has been an avenue of investigation into adolescent substance use. According to the Florida Department of Children and Families (2000), the analysis of risk and protective factors is the most powerful paradigm for understanding the genesis of both positive and negative adolescent behavioral outcomes. This type of research can lead to the successful design of adolescent prevention programs. Still, the complex matter of substance use among our youth has not been completely understood; and use, though with varying trends, persists. The next section looks more specifically at the patterns and prevalence of adolescent substance use.

Adolescent Substance Use and Nonuse

There are both individual and contextual factors that have been implicated in the initiation and maintenance of substance use (Lerner & Galambos, 1998; Newcomb et al., 1987). As well, there is an existing diverse set of factors that protect youth against involvement with licit and illicit substances and the problematic behaviors associated with use of substances (Lerner & Galambos). Drugs serve a variety of functions for different individuals (Thorne & De Blassie, 1985), and different drugs may serve similar functions at different stages of the life span (Chen & Kandel, 1995). There are numerous pathways to substance use that are not captured by a single etiological cause (Newcomb et al.). In most instances, drug addiction is a combination of biological, psychological, and environmental causes (Wolman, 1998).

While adolescents experience multiple biological, psychological, and cognitive changes, as well as social challenges and changes, according to Bachman et al. (1997), by late adolescence many aspects of personality and patterns of behavior are well developed. Many abilities and interests have been established including patterns of interpersonal skills, relationships, recreational behaviors, and attitudes about taking risks and patterns of

drug-using behavior have developed (Bachman et al.). Kandel and Logan (1984) examined patterns of drug use from adolescence to young adulthood. The researchers, using life-table analysis to examine drug behavior, found that the period of highest risk for initiation of cigarettes, alcohol, and most illicit drugs peaked at age 18 and declined thereafter. Cocaine was the exception, with initiation rates increasing after age 19. Rates of initiation into the prescribed psychoactives increased sharply at age 18, in the same period when initiation of illicit drugs first subsided, and persisted at an increasing rate through the mid-twenties. The data for this study by Kandel and Logan were obtained through a first follow-up of personal interviews of 1,325 persons at the mean age of 24.7 years. The sample was representative of adolescents formerly enrolled in grades 10 and 11 in public secondary schools in New York State in fall 1971. A fourth wave of personal interviews was conducted at ages 34-35 with a cohort of men and women (n=1,160) representative of the adolescents formerly enrolled in New York State public secondary high schools in 1971 (Chen & Kandel, 1995). Chen and Kandel found that almost no individuals initiated use of any legal or illegal drug after age 29. The highest rates of initiation among men and women were observed for

medically prescribed substances. Chen and Kandel reported that not only does the prevalence of daily use decline over time, but the prevalence of heavy usage among daily users declines as well for alcohol and marijuana but not for cigarettes. Cigarettes were found to be the most persistent of any drug used (Chen & Kandel).

Early substance use has obvious implications for explaining later drug use; developmental sequences are often observed in which use of certain substances is typically preceded by use of other substances (Kaplan, Martin, & Robbins, 1984). Wagner and Anthony (2002) examined exposure opportunity and use of alcohol, tobacco, marijuana, and cocaine. The researchers used data from the 1991, 1992, 1993, and 1994 National Household Surveys on Drug Abuse gathered by means of a standardized interview or questionnaire and then analyzed the data with life-table analysis and survival analysis regressions. Wagner and Anthony found that alcohol and tobacco users were more likely than nonusers to have an opportunity to try marijuana and were seven times more likely to start using marijuana than individuals who had used neither alcohol nor tobacco. A sample of 26,015 youths aged 12-18 years were included in analyses on transitions from alcohol and tobacco use to marijuana involvement. The researchers also

found that prior marijuana use was closely associated with the opportunity to try cocaine, with marijuana users 15 times more likely to use cocaine than those who did not use marijuana. A sample of 44,624 respondents aged 12-25 years were included in the cocaine transition analyses. In a separate but related study, Wilcox, Wagner, and Anthony (2002) found that marijuana users were more likely than nonusers to be offered an opportunity to use LSD, PCP, and other hallucinogens. Marijuana users were 12-13 times more likely to actually use hallucinogens than marijuana nonusers (Wilcox et al.). This study was based on data from the 1991, 1992, 1993, and 1994 National Household Survey on Drug Abuse (n=41,271, aged 12-25) with discrete time survival analysis models. As cited in Stein et al. (1987), drug use in late adolescence has accounted for about 60% of the variance of drug use in young adulthood.

As the country begins the 21st century, the problems of substance abuse among American young people remain clearly widespread. The Monitoring the Future survey of 8th, 10th, and 12th grade students (n=44,346) found that four out of every five students (80%) have consumed alcohol (more than just a few sips) by the end of high school, and about half (51%) have done so by the 8th grade (Johnston, O'Malley, & Bachman, 2002a). Johnston et al. found that nearly two-

thirds (61%) of American young people have tried cigarettes by the 12th grade and four in every ten students (37%) having tried cigarettes as early as 8th grade. Almost a third (30%) of 12th graders and one in eight (12%) of 8th graders reported being current smokers. Over half (54%) of American young people have tried an illicit drug by the time they finish high school, and if inhalant use is included in the definition of an illicit drug, more than a third (35%) have done so as early as 8th grade. The 2003 National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration, 2004) found an estimated 8.9% of youths aged 12 to 17 were classified with past year illicit drug or alcohol dependence.

Data from SAMHSA's National Household Survey on Drug Abuse for the year 2000 show that youth who reported alcohol or illicit drug use during the past year were more likely than those who did not use these substances to be at risk for suicide during this time period ("Substance-Abusing Youth at Greater Risk For Suicide," 2002). Among youth who used alcohol, 19.6% thought about or attempted suicide in the past year compared with 8.6% among youth who did not use alcohol. Among those who used illicit drugs, 25.4% thought about or attempted suicide compared with 9.4% among those who did not use drugs ("Substance-Abusing Youth

at Greater Risk For Suicide"). Overall, approximately 3 million youth aged 12 to 17 thought about or attempted suicide in 2000 ("Substance-Abusing Youth at Greater Risk For Suicide").

With changes in substance use come changes in medical treatment. From 1999 to 2000, total drug-related emergency department visits in the continental United States increased 20% for patients aged 12 to 17 (from 52,783 to 63,448) and 13% for patients aged 18 to 25 (from 109,580 to 123,438), but remained stable for older age groups ("Youth Drug-Related Emergency Department Visits Increase," 2001). Emergency department visits involving the club drug MDMA (Ecstasy) increased 58%, from 2,850 visits in 1999 to 4,511 in 2000 in the continental United States, and the number of heroin/morphine-related visits increased 15%, from 84,409 to 97,287 ("Youth Drug-Related Emergency Department Visits Increase"). Of the approximate 3 million youth aged 12 to 17 who thought about or attempted suicide in 2000, only 36% of these at-risk youths received mental health treatment during this same time period ("Substance-Abusing Youth at Greater Risk For Suicide," 2002).

Adolescent substance use is seemingly perpetual. The continuous flow of the introduction of new drugs, such as Rohypnol, GHB, and ecstasy in the 1990s helped to keep the

drug epidemic going (Johnston et al., 2002a). The pervasiveness of substance use is also promoted by the "rediscovery" of older drugs by young people, including LSD, methamphetamine, heroin, cocaine, PCP, and crack, and by new forms of taking older drugs, as illustrated by crack, crystal methamphetamine, and noninjected heroin (Johnston et al.).

Given the consequences of use, adolescent substance use remains an issue of high public concern and policy attention. Understanding the interrelation of adolescent substance use with risk and protective factors and identifying the level, if any, at which a factor moves from one classification to the next, such as a protective factor becoming a risk factor, is vital in providing the greatest protective effects against substance use. Three variables of interest for this study are reviewed in the following section. These include adolescent participation in school sponsored and/or community sponsored athletic activity and nonsport activity, and after-school and/or weekend employment.

Adolescent Participation in School Sponsored and/or Community Sponsored Extracurricular Activity

Social development theory, with an emphasis on contextual variables, predicts that student involvement

in constructive activities, in addition to consistent rewards for successful participation, prevents delinquency (Jenkins, 1996). Social control or *bonding theory* suggests that delinquency results from a lack of social bonding between adolescents and one or more conventional influences or institutions (Hirschi, 1969). The source of influence may include parents and teachers as role models, school and community programs as conventional lines of activities, or educational and career aspirations (Hirschi). Hirschi's version of control theory predicts that adolescents with higher levels of attachment, commitment, involvement, and belief are less prone to deviate from the norms of society (Marcos, Bahr, & Johnson, 1986). Concomitantly, leisure boredom theory asserts that when the need to seek stimulation, challenge, and excitement is not satisfied in socially approved or appropriate ways, adolescents are likely to engage in delinquent behaviors, including drug and alcohol use, gang involvement, and fighting (Iso-Ahola & Crowley, 1991; Orcutt, 1984). According to Agnew and Petersen (1989), involvement in organized leisure activities facilitates bonding with conventional values and norms that serves to reduce the negative influence of opportunities for delinquency and reduce social strain. On the other hand, excessive time spent in unorganized and

unsupervised activities tends to introduce opportunities in which adolescents bond with antisocial values and norms, that may lead to delinquency (Agnew & Petersen).

As part of a countrywide government program carried out by the National Youth Anti-Drug Media Campaign, over 25,000 children aged 9-17 responded to the question "What is your anti-drug?" ("Children Say Music, Family, and Sports Keep Them Drug-Free, National Campaign Finds," 2000/2001). Music took first place among the factors that keep youth away from illegal drugs, followed by family, football, friendship, dancing, "me," basketball, computers, soccer, and biking ("Children Say Music, Family, and Sports Keep Them Drug-Free, National Campaign Finds").

As cited in Csikszentmihalyi and Schmidt (1998), teenagers are most happy and satisfied when they are involved in sports and hobbies, music or art, and intimate friendships. According to Greenberger and Steinberg (1986), extracurricular activities (a) provide opportunities for role experimentation and, consequently, for growth in the realm of identity; (b) require adolescents to exercise independence and self-control and to learn about cooperation; and (c) provide intellectual stimulation and a basis for the further development of mastery and feelings of competence as new opportunities for learning continue to

emerge. When such outlets are not available, teenagers often turn to deviance as an alternative, even though the challenges presented by deviant activities are dangerous and ultimately destructive (Csikszentmihalyi & Schmidt). Adolescents are seen to turn to delinquency when they cannot get what they want through legitimate channels (Agnew & Petersen, 1989). Drug use and other risk behaviors can serve important social and personal functions for adolescents and are unlikely to be abandoned in the absence of alternatives that can provide similar satisfactions (Jessor, 1992).

In an early study, Landers and Landers (1978) examined extracurricular participation and misdemeanor and felony offenses among 521 male high school students in a small northeastern town situated about 15 miles from a city of nearly 300,000 people. Chi-square analysis showed that participation in athletic and/or service-leadership activities was significantly related to lower incidence of delinquent acts, with little difference between rates of delinquency by type of extracurricular activity. Rates of delinquency were highest for students who engaged in no extracurricular activities. These findings were supported by the findings of Yin, Katims, and Zapata (1999). The *F* test results for their study showed involvement in

delinquency to be significantly associated with increased participation in unsupervised socialization with friends and less frequent participation in organized leisure activities, organized sport activities, and activities at home. The sample for this study consisted of 2,651 Mexican American male and female middle and high school students in south central Texas.

Eccles and Barber (1999) found clear evidence among 1,259 respondents that participation in extracurricular activities during the high school years provided a protective context in terms of both academic performance and involvement in risky behaviors. The vast majority of participants in this study were European-American adolescents from working- and middle-class families living in small industrial cities around Detroit. The researchers looked at measures of central tendency and dispersion and tested the hypotheses more directly using longitudinal regression analysis.

In examining the relationship of adolescent substance use to extracurricular activities, peer influence, and personal attitudes, Shilts (1991) assessed responses from 237 seventh and eighth grade students in southwestern Virginia. Frequencies, percentages, and the chi-square test of independence were used in analyzing the survey data.

Shilts' study found that substance abusing adolescents reported little involvement in extracurricular activities, reported spending more time with friends than with their family, and identified their friends as individuals who use/abuse drugs and alcohol. In contrast, the nonusing adolescents tended to be highly involved in extracurricular activities and reported spending more time with their family and less time with peers/friends.

Intervention research suggests that increasing students' sense of connectedness to school decreases health-risk behavior (McNeely, Nonnemaker, & Blum, 2002). In an analysis sample of 11,572 adolescents in grades 7 through 12, Resnick et al. (1997) assessed risk and protective factors for use of cigarettes, alcohol, and marijuana, as well as for emotional distress, suicidal thoughts and behaviors, violence, age of sexual debut, and pregnancy history. Multiple linear regression was used to assess the continuous and quasi-continuous outcome variables, logistic regression was used for pregnancy history, and Cox regression was used to assess age of sexual debut. Each of these analyses controlled for the effects of key demographic variables: sex, race, ethnicity, family structure, and poverty status. Resnick et al. identified school connectedness as the only school-related

variable that was protective against every health risk behavior measure except for history of pregnancy. McNeely et al. found that four school attributes - classroom management climate, school size, severity of discipline policies, and rates of participation in extracurricular activities - explain a significant percent of between-school variance in school connectedness. With specific regard to extracurricular activities, their study found that as more students participated in extracurricular activities during or after school, overall school connectedness was higher. McNeely et al. examined data from the in-school and school administrator surveys of the National Longitudinal Study of Adolescent Health (75,515 students in 127 schools). Hierarchical linear models were used to estimate the association between school characteristics and the average level of school connectedness in each school.

In a similar vein, Mensch and Kandel (1988) noted that involvement in drugs may reflect a failure in socialization, which is manifested by the lack of attachment to conventional social institutions such as the schools. As cited by Dunn et al. (2001), results of longitudinal research indicate that children who have low commitment to school and who have high rates of school

failure are at risk for drug use, and, importantly, for earlier onset of alcohol, tobacco, and other drug involvement. Activities that promote academic achievement and school bonding reduce the risk of substance abuse ("Substance abuse: predicting it, preventing it," 2001).

Expanding the milieu, Muller and Frisco (1998) reviewed literature on the subject of social institutions serving adolescents. They reported findings have been much the same with student participation in youth organizations such as activities at the YMCA, Little League, and Boy Scouts as with student participation in school sponsored activities. Muller and Frisco characterize these activities offering real, instrumental rewards and opportunities. Engagement in youth organizations has been associated with a broad spectrum of positive outcomes, including higher academic performance and adjustment in school, lower likelihood of delinquency, and better relationships with adults (Muller & Frisco).

With regard to specific substance use among extracurricular participants as opposed to nonparticipants, Boyd (1988) found that students who did not participate in extracurricular activities reported greater use of cigarettes, amphetamines, stimulants, barbiturates, marijuana, cocaine, beer, and liquor. Students who did

participate in extracurricular activities reported greater use of chew tobacco, snuff, wine, and wine coolers. The population of the study consisted of 1,720 students ranging in age from 14-19 in grades 9-12 in Central Ohio. The survey data were analyzed using frequency tables, analysis of variance, *F* tests, Pearson Product Moment Correlations, and chi-square. Hedgpeth's (1981) descriptive study of 1,063 high school students in Arlington, Texas, found that males and females who did not participate in extracurricular activities were the highest consumers of alcohol. Interestingly, nonparticipating males were the most frequent users of drugs, while nonparticipating females were the less frequent users.

Cooley, Henriksen, Nelson, and Thompson (1995) surveyed 5,639 students aged 11-19 from four midwestern schools in suburban and rural settings in efforts to determine the effects of extracurricular participation on student substance use in secondary schools. The chi-square statistic was utilized to determine if a relationship existed between variables. Percentage scores for student extracurricular participation were incorporated to illustrate experimentation and usage patterns by grade level. Their study found that both participants and nonparticipants in extracurricular activities were using

drugs, although participants were not using tobacco, alcohol, and other substances to the extent of their nonparticipating counterparts. Concerning extracurricular participants, the substance and extent of use varied with the activity. Greatest difference was noted in increased use of tobacco and alcohol with athletic participants and participants in multiple activities over participants in government clubs and those in music/drama. In addition, Cooley et al. found that student participation in multiple extracurricular activities provided minimum reduction in tobacco, alcohol, and other drug experimentation and use. In many instances, these students were experimenting and using alcohol and drugs at or above the rate of their peers participating in a single extracurricular activity.

Likewise, Lane et al. (2001) found that extracurricular participants and nonparticipants reported substance use. The researchers found that participants in sports/physical activities, church-related activities, music/art/performing arts, club/youth group, and student government/ROTC/other civic activity reported less past year use of marijuana, cigarettes, and illicit drugs other than marijuana than nonparticipants. While participants in church-related activities, music/art/performing arts, and club/youth group reported less past year use of alcohol

than nonparticipants, those involved in sports/physical activities and student government/ROTC/other civic activity reported greater alcohol use than nonparticipants. Contrary to the findings of Cooley et al. (1995), Lane et al. found that adolescents who participated in two or more activities were associated with lower levels of past year use of marijuana, cigarettes, alcohol, and illicit drugs other than marijuana than students participating in only one activity or no activities. The sample for this study consisted of 7,844 respondents aged 12 to 17 who represented the national population of 22 million in this age group. The prevalence of risk and protective factors and the relationships of those factors to substance use were explored with cross-tabulations and odds ratios. Multivariate methods were used to analyze the strength of the relationship between risk and protective factors and substance use.

It makes sense that teenagers would be less susceptible to the lures of violence, promiscuity, drug abuse, and other maladaptive behaviors if they were presented with opportunities for participation in activities that were equally engaging and involved risk and responsibility but were socially constructive (Csikszentmihalyi & Schmidt, 1998). As well, the activities

in which the adolescents participate should be quality activities in terms of experience, creativity, and opportunities for reflection (Carlini-Cotrim & de Carvalho, 1993).

Brown and Theobald (1998) noted that extracurricular and community service programs for adolescents should be oriented toward complementing experiences in the school. This reinforces young people's interest in learning and expands their socialization or opportunities for self-exploration beyond the purely academic realm (Brown & Theobald). Holland and Andre (1987) promoted a developmental perspective in which school programs provide experiences that further the total development of individual students. Nonacademic programs can be as important as academic programs in facilitating the development of the individual (Holland & Andre).

As schools across the United States face fiscal crises, extracurricular programs are often the first to be cut from the budget (Csikszentmihalyi & Schmidt, 1998). However, unless schools provide meaningful and interesting extracurricular activities, students may choose drugs and alcohol as passive activity (Holcomb, 1973). Community offerings must be considered with the same regard. While the level of extracurricular involvement varies appreciably

across schools, as well as among youth of different ages or ethnic or socioeconomic backgrounds (Brown & Theobald, 1998), administrators must remember the general principle: healthy growth requires that the individual be fully functioning and involved with meaningful challenges (Csikszentmihalyi & Schmidt). According to Csikszentmihalyi and Schmidt, if these requirements are obtained, teenagers will not need to seek refuge in passive entertainment or self-destructive alternatives.

This section provided a review of literature on adolescent participation in school sponsored and/or community sponsored extracurricular activities as a whole. The following section will explore literature on the subject of student participation in school sponsored and/or community sponsored sport and athletic activity in particular.

*Adolescent Participation in School Sponsored and/or
Community Sponsored Sport and Athletic Activity*

In the United States, an estimated 22 million children between the ages of 5 and 17 years are involved in agency-sponsored sports programs, such as Little League Baseball and Pop Warner football (Trost, Levin, & Pate, 2000). Another 24 million are involved in club sports, recreational sports programs, intramural sports programs,

and interscholastic sports (Troost et al.). According to Troost et al., data from the U.S. Centers for Disease Control and Prevention indicates that approximately 60% of U.S. high school students participate on at least one school or community-based sports team. Holland and Andre's (1995) study of prestige ratings of high school extracurricular activities found that the high prestige value was accorded to both male and female varsity sports as compared to nonsport activities.

Involvement in sports activities is seen as a type of peer program, which affords participants the opportunity to have new experiences, to learn the meaning of individual effort and meaningful cooperation, to develop self-understanding and a sense of community via team membership (Stuck, 1990), to increase self-confidence, and experience achievement (Troost et al., 2000), as well as disappointment. Baumert, Henderson, and Thompson (1998) found that athletes were less likely to feel bored or hopeless, and as cited in Holland and Andre (1995), participation in school activities contributes to student status and acceptance.

Fagerberg and Fagerberg's (1976) descriptive study found that sports and recreational activities were chosen as preferred alternatives to drug use among 1,029 subjects

in three academic settings - high school, a community college, and a university. Stuck's (1990) qualitative study of 100 youths aged 12 and 20 in junior and senior high schools found that the athletic peer group was one specific peer group to which adolescents changed when they wished an alternative to substance use. Further, other youth reported it was not only the athletic peer group which served as a deterrent or alternative to drug use, many of the adolescents indicated that it was specifically their own personal involvement in sports programs that helped them limit or prevent drug use.

Landers and Landers (1978) reported that investigators have found a strong positive relationship between athletic participation and educational expectations, higher grade averages, and greater enrollment in college preparatory curricula among high school athletes, with the drop-out rate for nonathletes to be significantly higher than for athletes. The belief among the population generally has been/is that youth who participate in sports exemplify and accept standards of personal conduct defined as desirable by the mainstream (Stuck, 1985).

With sports participation come the competitive pressures and, for many, a "win at all cost" mentality (Moose, 1995). According to UCLA psychologist Bryant E.

Cratty, a survey of Little Leaguers indicated that about one-third of the young players showed signs of serious emotional stress stemming from their sports involvement; among high school athletes, one or two members of any typical football team of 40 to 60 players were on the verge of a nervous breakdown during a season (Harris, 1987). Per Cratty, athletic success may be the glue that is holding an adolescent together and becomes especially important in cases where the athlete's family is unstable, or not supportive. Failure on the field may result in despair, inappropriate aggression, and antisocial behaviors which, in turn, may prompt the athlete to turn toward substance use (Harris).

According to Werch, Carlson, Pappas, Edgemon, and DiClemente (2000), there has been speculation that certain imputed risk factors for alcohol and drug misuse are more prevalent among athletes than nonathletes, including sensation seeking, "macho" male expectancies associated with drinking, the pressure of competition, and using alcohol and drugs to relieve stress. Aside from using substances to cope with the many associated pressures, athletes often use substances with the belief that the drugs will improve their speed, stamina, and/or strength, thereby enhancing athletic performance; athletes often use

drugs for therapeutic and/or rehabilitative purposes, such as to reduce pain, heal injuries, and speed recovery time; and athletes are as prone to use drugs for recreational purposes as are nonathletes (Moose, 1995).

The following subsections describe research on the subject of athletic participation and substance use. The substances of interest include alcohol, tobacco, illicit drugs, and steroids.

Alcohol

Studies have produced conflicting findings for the relationship between alcohol consumption and adolescent athletic and sports participation. This subsection will focus on research pertaining to athletes and nonathletes and reported alcohol use.

An early study by Hayes and Tevis (1977) found that adolescents who participated in athletics more often were abstainers and were less often heavy drinkers than nonathletes. Two-way analysis of variance indicated a significant difference between athletes and nonathletes with respect to reported drinking behavior and attitudes toward temperate use of alcohol; nonathletes revealed more tolerant attitudes toward temperate use of alcohol than did athletes. No significant difference between athletes and nonathletes was found with regard to their attitudes toward

irresponsible use of alcohol. The sample consisted of 405 10th, 11th, and 12th grade students of both sexes in two cities in Texas. A study by Thorlindsson, Vilhjalmsson, and Valgeirsson (1990) produced similar findings. The study concluded that adolescents who participated in sports were less likely to drink than their nonathletic counterparts. The researchers also found both the frequency of sports participation and the hours engaged in sport were inversely associated with alcohol consumption. The analysis was based on a nationwide random sample of 1,200 Icelandic 15 and 16-year-old male and female students attending 9th grade. Valid questionnaires were obtained from 1,131 individuals. The researchers used descriptive statistics for the study variables, variable correlations, and coefficients for model of direct and indirect effects of sport participation.

Similar to the findings of the above studies with samples consisting of high school adolescents, Terre, Drabman, and Meydrech (1990) found that alcohol use clusters with dislike for leisure-time physical activity in grades 7 and 8. Terre et al. found this dislike for leisure time activity in grades 7-8 with use of alcohol shifts to an association with fights in the high-school cohort. To explore the associations among children's health-related

behaviors, the study variables were subjected to principal components factor analysis. The sample for this study included 1,092 predominantly low-socioeconomic status, rural schoolchildren (aged 11-18, grades 6-12).

Cooley et al. (1995) examined the effects of extracurricular participation on student drug and alcohol use in secondary schools using the chi-square statistic and percentage scores. The sample consisted of 5,639 students from four midwestern schools in suburban and rural settings. The study showed alcohol to be the drug of choice for students in grades 5 through 12. Reported use of alcohol by students not participating in extracurricular activities exceeded use by athletic participants, with the actual counts being 294 and 207 respectively.

Interestingly, the count for experimentation with alcohol among athletic participants was 642, with use at 207, which greatly exceeded experimentation and use of participants in other activities. The count for experimentation for government club participants was 171 and use was 54, and experimentation for music and drama participants was 321 and use was 53.

Stuck's (1990) qualitative study of 100 adolescents aged 12-20 in a northeastern city corroborated the results of the above-mentioned quantitative studies. Stuck found

occasional or regular use of beer and liquor to be greatest among nonparticipants in sports. 77% of nonparticipants in sports reported use of beer and 69% reported use of liquor. 50% of participants in organized sports reported regular use of beer while 28% reported regular use of liquor, and 75% of recreational sports participants reported regular use of beer and 63% reported regular use of liquor.

Several studies have found no difference in alcohol intake between athletic and nonathletic participants. Baumert et al. (1998) found no significant difference between athletes and nonathletes with respect to use of alcohol and number of alcoholic drinks consumed per occasion after controlling for age, race, and gender. This finding was among a sample of 4,036 student athletes and 2,813 student nonathletes in grades 9-12 in the Muscogee County, Georgia, School District. The survey data for this study were examined with frequency tables, chi-square, and multiple linear regression. The study by the Women's Sports Foundation (n.d.) using a nationally representative sample of 16,262 public and private high school students in grades 9-12 produced similar results. Using logistic regression analyses, the researchers found neither female nor male athletes were significantly more likely than nonathletes to drink alcohol overall or to drink to excess. However, the

study did show that highly involved athletes of both genders were somewhat more likely to binge drink than nonathletes.

Dissimilarities in alcohol consumption by gender have been found. Among 1,713 students in a large midwestern, suburban high school, Carr, Kennedy, and Dimick (1990) used chi-square analysis to evaluate the survey data. The researchers found male athletes consumed alcohol significantly more than male nonathletes. Male athletes were found to drink alcohol to intoxication at a significantly greater difference than female athletes, as 73% of the male athletes surveyed reported having experienced intoxication as compared to 58% of the female athletes. Carr et al. found no significant difference in the frequency of alcohol consumption between female athletes and nonathletes. The findings by Pate, Heath, Dowda, and Trost (1996) contradict those by Carr et al. Using a nationally representative sample of 11,631 U.S. high school students, the study showed that high physical activity was associated with increased alcohol consumption among female students but was unrelated to drinking practices among males. Unadjusted odds ratios, multiple logistic regression analyses, and backward stepwise elimination procedures were used to examine the

relationship between alcohol consumption and the students' physical activity level.

With further regard to binge drinking, Pate, Trost, Levin, and Dowda (1999) found male sports participants more likely to binge drink than nonparticipants. The sample included 14,747 U.S. high school students who completed the 1993 Youth Risk Behavioral Survey, a nationally representative sample. A longitudinal study by Burke et al. (1997) examined health-related behaviors of Australian 18-year-olds (301 males, 282 females) initially recruited at the age of 9 years from 26 schools. Association analysis was used to recognize behavior clustering. The researchers found that unsafe drinking, smoking, and physical inactivity (among other variables assessed) showed clustering for females. Among males, unsafe drinking and smoking showed association, however there were no significant associations with physical activity. The researchers reported that many young Australian men who belong to sporting clubs and are physically active take part in weekend social activities in which binge drinking and smoking are common.

Numerous studies have found athletic participation to be associated with an increase, an often-significant increase, in alcohol use. Lane et al. (2001) found that

participants in school sponsored and/or community sponsored sports/physical activities reported greater use of alcohol in the past year than nonparticipants. 33.8% of youths who participated in sports/physical activities reported use of alcohol in the past year as compared to 32.2% of nonparticipants. Their analysis of 7,844 respondents aged 12 to 17 represented the national population of 22 million in that age group.

Eccles and Barber (1999) found that being involved with team sports contributes significantly to an increase in alcohol use and getting drunk over the high school years after controlling for mother's education, student gender, and intellectual aptitude. The sample for this longitudinal study consisted of 1,259 mostly European-American adolescents from working- and middle-class families living in small industrial cities around Detroit. The vast majority of participants in this study were in the 12th grade. The survey data were examined using measures of central tendency and dispersion and longitudinal regression analysis.

Winnail, Valois, Dowda, McKeown, Saunders, and Pate (1997) explored the relationship between athletic participation and substance use among public high school students in a Southern state. The analysis sample consisted

of 3,437 of 4,800 surveys collected throughout the survey state. After adjusting for race and gender, the odds ratio was significant at the 95% confidence interval for nonathletes less likely to use alcohol than their athletic counterparts. Additional logistic regression analysis showed that nonathletic White males were significantly less likely to use alcohol than their athletic counterparts, with no significant relationships identified among other groups with regard to alcohol.

A like study by Rainey, McKeown, Sargent, and Valois (1996) found, too, that athletic youths are at an increased risk of alcohol use and binge drinking. When level of activity was considered, highly involved athletes (those who participated in 2 to 3 sports teams over the course of a year) were found to report more frequent drinking than did low activity nonathletes and sedentary nonathletes and were more likely to binge drink. The sample for this study consisted of 7,846 9-12th grade students in 81 South Carolina public schools. Mantel Haenszel chi-square, general linear models, and logistic regression were used to examine the relationships between independent variables of race, gender, and level of physical activity with the dependent variables of alcohol use and tobacco use.

Cigarette Use

Multiple studies of tobacco use in the form of cigarette smoking among athletes and nonathletes have produced generally consistent findings. Nonathletes are more likely, often significantly more likely, to smoke cigarettes than their athletic counterparts.

Escobedo, Marcus, Holtzman, and Giovino (1993) studied the relationship of interscholastic sports participation with cigarette use in a nationally representative sample of 11,248 U.S. high school students (data from the 1990 Youth Risk Behavior Survey). The researchers calculated proportions and 95% confidence intervals and examined the data using logistic regression models, the Cochran Mantel-Haenszel test, and the linear test for trend. Escobedo et al. found that students who participated in school sponsored sports were less likely to be regular and heavy smokers. When the authors adjusted for age, sex, race/ethnicity, and academic performance, the prevalences and adjusted odds ratios of regular and heavy smoking decreased substantially with increasing number of sports played.

A study by Pate, Heath et al. (1996) expanded the context of consideration from interscholastic sports to school sponsored and community sponsored athletics and

sports. Using unadjusted odds ratios, multiple logistic regression analyses, and backward stepwise elimination procedures, the researchers examined data from a nationally representative sample of 11,631 U.S. high school students (1990 Youth Risk Behavior Survey). Analysis showed that participation in school sponsored and/or community sponsored athletics and sports was negatively associated with cigarette use. This finding was supported by the later investigation of risk and protective factors with reported substance use as part of the National Household Survey on Drug Abuse (Lane et al. 2001). Lane et al. found that 21.9% of participants in school sponsored and/or community sponsored sports/physical activities reported use of cigarettes in the past year as compared to 27.3% of nonparticipants. Their analysis of 7,844 respondents aged 12 to 17 represented the national population of 22 million in that age group.

The findings of the Women's Sports Foundation's (n.d.) study of adolescent health risks and participation in sport also found that athletes were less likely than nonathletes to have ever smoked cigarettes regularly or to have smoked within the past month. Utilizing the data from the 1997 Youth Risk Behavior Survey, the sample for this study was nationally representative, with 16,262 public and private

high school students in grades 9 through 12. The data were analyzed using logistic regression.

Studies utilizing area samples (i.e. district, state, region) have produced similar findings as those utilizing nationally representative samples. Rainey et al. (1996) examined patterns of tobacco use with activity level and levels of athletic team participation among 7,846 9th to 12th grade students in 81 South Carolina public schools. Survey data were analyzed using Mantel Haenszel chi-square, general linear models, and logistic regression. After controlling for race, gender, and physical education participation, nonathletes were found to be significantly more likely to be smokers than athletes, with "sedentary nonathletes" the heaviest smokers of all groups (six physical activities levels utilized ranging from sedentary nonathletes to athletes participating on two or more sports teams). Winnail, Valois, Dowda, et al. (1997) explored the relationship between athletic participation and substance use. The analysis sample consisted of 3,437 of 4,800 surveys completed by public high school students in a Southern state. Logistic regression analysis with adjustment for race and gender indicated that nonathletes were significantly more likely to smoke cigarettes than their athletic counterparts. Baumert et al. (1998) assessed

differences in health-related behaviors between athletes and nonathletes. The sample for this study consisted of 6,849 students (4,036 student athletes and 2,813 student nonathletes) in grades 9 through 12 in the Muscogee County, Georgia, School District. With regard to cigarette smoking, nonathletes reported greater use than did athletes, even after controlling for age, race, and gender. The survey data were examined with frequency tables, chi-square analysis, and multiple linear regression.

Sports participation and/or physical activity and cigarette smoking have been found to vary by gender and ethnicity. With a sample of 3,437 public high school students in South Carolina, Winnail, Valois, McKeown, Saunders, and Pate (1995) used descriptive statistics, logistic regression analysis, odds ratios, and 95% confidence intervals to examine the data. The researchers found significant associations among White males for use of cigarettes; higher levels of physical activity were inversely associated with cigarette use. No statistically significant associations occurred among White females, Black males, or Black females. Pate, Trost et al. (1999) found female sports participants were less likely to smoke cigarettes than nonparticipants. 14,747 U.S. high school students who completed the 1993 Youth Risk Behavioral

Survey, a nationally representative sample, provided the data for this study. A study of health behaviors using association analysis among 583 18-year-old Australians found that females who smoked cigarettes had a lower level of physical activity than nonsmokers; however, male smokers did not show this association with lower levels of physical activity (Burke et al., 1997). According to Burke et al, many young Australian men who belong to sporting clubs and are physically active take part in weekend social activities in which binge drinking and smoking are common.

Regarding cigarette use among adolescents, a review of literature by Trost et al. (2000) reported that, overall, athletes are about 1.2 to 4 times less likely than nonathletes to smoke cigarettes.

Smokeless Tobacco

With regard to use of smokeless tobacco, research findings have been contradictory. While some reported a positive association between athletic participation and smokeless tobacco use (Pate, Trost et al., 1999; Terre et al., 1990; Women's Sports Foundation, n.d.), others reported no association (Baumert et al., 1998; Winnail, Valois, Dowda, et al., 1997), and still other research has shown an inverse association where higher levels of

activity provide protective effects against use (Winnail, Valois, McKeown, et al.; 1995).

Pate, Trost et al. (1999) found that male sports participants in school and/or nonschool settings were more likely to use chewing tobacco. This finding was among a nationally representative sample of 14,747 U.S. high school students who completed the 1993 Youth Risk Behavioral Survey. The findings by the Women's Sports Foundation (n.d.) concurred with those of Pate, Trost et al. in that male athletes were more likely to use chewing/dipping tobacco than nonathletes. Further, the study showed that female athletes were more likely to use smokeless tobacco than female nonathletes. In fact, the study found that highly involved female athletes (those participating in three or more sports teams over the course of a year) were more than three times as likely to use chewing/dipping tobacco as female nonathletes. These findings were derived from logistic regression analysis of the 1997 Youth Risk Behavior Survey, a nationally representative survey of 16,262 public and private high school students in grades 9 through 12. In a study of 1,092 predominantly low-socioeconomic status, rural schoolchildren (aged 11-18, grades 6-12), Terre et al. (1990) found that abstinence from chewing tobacco and snuff use covaries with physical

inactivity and lack of sports play among 9th and 10th graders. That is, sedentary youth were not using chewing tobacco and snuff as were their athletic counterparts. This association was revealed with principal components factor analysis.

Rainey et al. (1996) found that almost 16% of "high activity athletes" reported smokeless tobacco use followed by 10.6% of "moderate activity athletes," which was significantly higher than the next group. A positive relationship was shown between smokeless tobacco use and activity levels. However, no significant differences occurred in use among athletes and nonathletes when controlling for race, gender, and physical education class participation. The population for this study consisted of 7,846 students in grades 9 through 12 in 81 South Carolina public schools. Mantel Haenszel chi-square, general linear models, and logistic regression were used to examine the relationships between the study variables.

In contrast to the above findings on use of smokeless tobacco, results reported by Winnail, Valois, McKeown, et al. (1995) suggest that higher levels of physical activity may have protective effects for use of smokeless tobacco. With an analysis sample of 3,437 public high school students from South Carolina, their study showed that as

level of physical activity increased reported use of smokeless tobacco decreased for White male subjects in the study. For smokeless tobacco usage, White males had the highest use percentage (29.53%) followed by Black males (1.88%), Black females (0.91%), and White females (0.84%). Descriptive statistics, logistic regression analysis, odds ratios, and 95% confidence intervals were used to examine the data.

Baumert et al. (1998), using frequency tables, chi-square analysis, and multiple linear regression, found no significant difference in reported use of smokeless tobacco between athletes and nonathletes. The population for this study was composed of 6,849 students (4,036 student athletes, 2,813 student nonathletes) in grades 9-12 in the Muscogee County, Georgia, School district. These findings supported those of an earlier study by Winnail, Valois, Dowda, et al. (1997). Logistic regression analysis showed no significant difference in use of smokeless tobacco between athletes and nonathletes. The analysis sample for this study consisted of 3,437 public high school students in a Southern state.

Marijuana

Multiple studies have examined the prevalence of marijuana use among athletic participants. Collectively,

the results of these studies suggest that nonathletes report greater use of marijuana than athletes.

Two studies using logistic regression analysis to examine nationally representative samples of U.S. high school students found that nonathletic participants/those with little or no involvement in physical activity were associated with greater use of marijuana than were sports participants/highly active students (Pate, Heath et al., 1996; Women's Sports Foundation, n.d.). Expanding the age of a nationally representative sample to include 12 to 17 year old respondents, Lane et al. (2001) found that 18.1% of youths who did not participate in sports/physical activities reported past year marijuana use as compared to 13.7% of youths who participated in sports/physical activities.

In a study of 5,639 students aged 11 to 19 from four midwestern schools in suburban and rural settings, Cooley et al. (1995) found athletes as well as students not involved in extracurricular activities reported experimentation and use of marijuana. The chi-square statistic was utilized to determine if a relationship existed between marijuana experimentation and use and athletic participation. Percentage scores were used to describe experimentation and usage patterns by athletic

participation and student grade level. Cooley et al. found that experimentation with marijuana by students involved in athletics continued to rise from the 6th grade through the 12th grade with marijuana use greatest for students who did not participate in extracurricular activities. In grade 8, 14% of students who were not involved in extracurricular activities indicated experimentation with marijuana, and 4% indicated marijuana use. 11% of 8th grade students participating in athletics reported they had experimented with marijuana, and 0 respondents reported use. Among 12th grade students, 35% of student athletes and 26% of nonparticipants reported marijuana experimentation, and 7% of athletes reported marijuana use as compared to 27% of nonparticipants.

Winnail, Valois, Dowda, et al. (1997) found that athletic participants reported less marijuana use than nonparticipants. The analysis sample for this study consisted of 3,437 of 4,800 surveys completed by public high school students in a Southern state. Data were analyzed using logistic regression. A study by Baumert et al. (1998) had similar findings. With a sample of 6,849 students in grades 9-12 in Muscogee County, Georgia, School District, nonathletes reported greater use of marijuana than did athletes, which remained significant even after

controlling for age, race, and gender. The survey data were analyzed with frequency tables, chi-square, and multiple linear regression.

The results of a study by Winnail, Valois, McKeown, et al. (1995) suggested that higher levels of physical activity may have protective effects for use of marijuana among White male adolescents. The researchers noted that as level of physical activity increased reported use of marijuana decreased for the White male subjects in the study. No statistically significant associations occurred among the White females, Black males, or Black females. The analysis sample for this study consisted of 3,437 public high school students in grades 9 through 12 in South Carolina. Descriptive statistics, logistic regression analysis, odds ratios, and 95% confidence intervals were used to examine the data.

In concurrence with the quantitative studies, a qualitative study by Stuck (1985) found that nonsport participants reported greater use of marijuana than sports participants. Of 100 adolescents aged 12-20 in a northeastern city, Stuck found that 69% of nonparticipants in sport reported marijuana use, while 28% of sports participants reported marijuana use. Unique to the athletic participants, Stuck found that some athletes indicated use

of marijuana for specific purposes related to their belief that the drug enhanced performance.

Illicit Drugs Other Than Marijuana

While much literature addresses the use of high-profile substances such as alcohol, tobacco, marijuana, and anabolic steroids, the use of many drugs has been disregarded in research. According to Albrecht (1996), types of drugs (e.g. heroin, LSD) are not studied because the drugs are thought to be used by such a small percentage of young athletes that it would be a waste of resources to study their prevalence. Studies that have assessed prevalence of illicit drugs other than marijuana have produced conflicting results.

Two studies using data from nationally representative samples of U.S. high school students found that athletic participants were less likely to use illicit drugs other than marijuana than nonathletic participants (Lane et al., 2001; Women's Sports Foundation, n.d.). Among 7,844 respondents aged 12-17, Lane et al. found that 8.2% of participants in sports/physical activities reported use of cocaine/crack, heroin, hallucinogens, inhalants, and nonmedical use of analgesics, tranquilizers, stimulants, and sedatives as compared to 11.7% of nonparticipants in the year prior to the survey. The study by the Women's

Sports Foundation found that female athletes were less likely than female nonathletes to use cocaine and "other" drugs such as LSD, PCP, speed, or heroin. The study also found that male athletes were less likely than male nonathletes to use cocaine, crack cocaine, inhalants, or "other" drugs. The nationally representative survey data from 16,262 public and private high school students were analyzed with logistic regression.

In a study of 5,639 students aged 11 to 19 from four midwestern schools in suburban and rural settings, Cooley et al. (1995) examined experimentation and use of stimulants, depressants, inhalants, hallucinogens, and cocaine. The chi-square statistic and percentage scores indicated that experimentation and use were higher for students who did not participate in extracurricular activities than for those who were involved in athletics. A like study by Winnail, Valois, Dowda, et al. (1997) explored the relationship between athletic participation and substance use among public high school students in a Southern state. The analysis sample consisted of 3,437 of 4,800 surveys collected throughout the survey state. After adjusting for race and gender, the odds ratio was significant at the 99% confidence level for nonathletes significantly more likely to use illegal substances

including LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills without a doctor's prescription than their athletic counterparts. Additional logistic regression analysis indicated that White nonathletes were more likely to use "other drugs" than their athletic counterparts, which indicates that athletic participation may protect against illicit drug use in White public high school athletes. No significant associations were found among Black respondents with regard to use of "other drugs."

In concurrence with the quantitative studies, a qualitative study by Stuck (1990) found that of the adolescents who had never used hard drugs (i.e. speed, acid, cocaine, angel dust, heroin, Quaaludes, Valium, etc.), 73% were sports participants. However, Stuck also found that sport may be the very reason for use of certain drugs for some athletes. While Stuck found that some athletes indicated use of marijuana for specific purposes related to their belief that the drug enhanced performance, a few of the athletes also reported use of two of the harder drugs for specific purposes in relation to sports performance. These drugs included the amphetamine speed and the narcotic codeine. The sample for the study consisted of 100 adolescents aged 12-20 in a northeastern city.

The above-mentioned studies found nonathletic participants to use illicit substances other than marijuana more than athletic participants. Yet, there have been studies that have found no difference between athletes and nonathletes' reported use (Baumert et al., 1998; Eccles & Barber, 1999; Pate, Heath et al., 1996) and a study by Pate, Trost et al. (1999) that found increased illicit substance use among athletes.

In a nationally representative sample of 11,631 American high school students, Pate, Heath et al. (1996) found activity level to be unrelated to cocaine use. Unadjusted odds ratios, multiple logistic regression analyses, and backward stepwise elimination procedures were used to examine the relationship between cocaine use and the students' physical activity level. Baumert et al. (1998) reported similar findings. With a sample of 6,849 students (4,036 student athletes, 2,813 student nonathletes) in grades 9 through 12 in the Muscogee County, Georgia, School District, no difference was found between athlete and nonathlete with respect to use of cocaine, crack, other illicit drugs after controlling for age, race, and gender. The survey data were examined with frequency tables, chi-square analysis, and multiple linear regression. Eccles and Barber (1999) found no significant

difference with sports team participants reported use of drugs as compared to nonparticipants. The sample for this study included 1,259 students. The vast majority of participants in this study were 12th grade, European-American adolescents from working- and middle-class families living in small industrial cities around Detroit. The researchers used measures of central tendency and dispersion and longitudinal regression analysis to examine the survey data.

Pate, Trost et al. (1999) found that African-American sports participants in school and/or nonschool settings were more likely than nonsports participants to use illegal drugs. 14,747 U.S. high school students who completed the 1993 Youth Risk Behavior Survey, a nationally representative sample, provided the data for this study. As previously mentioned, Stuck's (1990) qualitative study found that while some athletes indicated use of marijuana for specific purposes related to their belief that the drug enhanced performance, a few of the athletes also reported use of two of the harder drugs for specific purposes in relation to sports performance. These drugs included the amphetamine speed and the narcotic codeine.

Steroids

Use of anabolic steroids has often been associated with sports participants though research findings have been varied. This subsection will focus on research pertaining to athletes and nonathletes and reported steroid use.

A study by Buckley et al. (1988) examined the prevalence of anabolic steroid use among the male portion of the general adolescent population. Participants in this study were 12th grade male students (n=3,403) in 46 private and public high schools across the nation. The survey data were analyzed with frequency counts and percentages, and the [X.sup.2] statistic was used to test for significant differences between groups. Results indicated 6.6% of the sample had used anabolic steroids, and over two-thirds of the user group initiated use when they were 16 years of age or younger. Participation in sports activities was significantly different between users and nonusers; the users were more inclined to participate in school-sponsored athletics ($P < .05$) and specifically more likely to participate in football and wrestling.

The Women's Sports Foundation (n.d.) analyzed responses from a nationally representative survey of 16,262 public and private high school students in grades 9 through 12. The findings on anabolic steroid use were mixed.

Logistic regression analysis showed that male athletes overall were no more likely to use anabolic steroids than male nonathletes. Female athletes overall and highly involved male athletes were both nearly one and a half times more likely than their nonathletic counterparts to use steroids, and highly involved female athletes were nearly twice as likely to do so.

Baumert et al. (1998) found no significant difference in steroid use (current or ever) between athletes and nonathletes after controlling for age, race, and gender. Athletes did report greater current use (2%) and lifetime use (5%) as compared to nonathletes' current use (1%) and lifetime use (3%), although the difference was not significant. The sample for this study consisted of 6,849 students (4,036 student athletes, 2,813 student nonathletes) in grades 9-12 in Georgia. The survey data were examined with frequency tables, chi-square analysis, and multiple linear regression. Winnail, Valois, Dowda, et al. (1997) also found no significant difference in steroid use between athletic participants and nonparticipants after adjusting for race and gender. Contrary to Baumert et al., Winnail, Valois, Dowda, et al. found nonparticipants reported greater steroid use (nonsignificant) compared to athletes. The analysis sample consisted of 3,437 public

high school students in a Southern state. Multiple regression analysis software for weighted data was used for data analysis.

Athletic participation has the potential to be an activity which could help protect adolescents against substance use (Winnail, Valois, Dowda, et al., 1997). As level of sports involvement decreases, research has shown that substance use increases (Stuck, 1990; Winnail, Valois, McKeown, et al., 1995).

There are, in theory, three ways in which school sports participation could influence health behaviors. By providing substantial amounts of physical activity, sports participation may cultivate more favorable attitudes and beliefs concerning positive health behaviors (Pate, Heath et al., 1996). By making participation contingent on following rules and regulations, extracurricular activities such as school sports discourage participation in negative health behaviors (Pate, Heath et al.; Trost et al., 2000). By providing adolescents with a professionally supervised, prosocial environment during "at-risk" times, school sports may limit those participants' opportunities to engage in negative behaviors (Pate, Heath et al.; Trost et al.).

This section provided a review of literature on adolescent participation in school sponsored and/or

community sponsored sport and athletic activity with substance use. Research has shown that adolescents who do not participate in sports as well as those who are sport participants are using drugs. The substance and extent of use among athletic participants and nonparticipants has varied among research findings.

While many adolescents are involved in athletics, many take on the responsibility of employment, which has presented added challenges. The following section will explore literature on the subject of student employment.

Adolescent Participation in Extracurricular Activity

Together With After-School and/or Weekend Employment

As cited in Mael, Morath, and McLellan (1997), 80% of all adolescents have held part-time or summer jobs by their senior year in high school, and the percentage of working adolescents has increased steadily over the past 40 years. The fact that the majority of adolescents are employed in paying jobs at some time while they are attending high school presents additional challenges for educators (Mortimer & Johnson, 1998) as well as for parents and adolescents themselves.

Much research has addressed the question as to whether working has positive or negative effects on adolescent development. There have been findings that provide argument

for the benefits of adolescent employment as well as findings that provide argument for the detriment of adolescent employment.

Researchers have examined the impact of adolescent employment on school involvement (Buser, Long, & Tweedy, 1975; Greenberger & Steinberg, 1986; Hedgpeth, 1981; Mortimer & Johnson, 1998; Safron, Schulenberg, & Bachman, 2001; Steinberg & Dornbusch, 1991). Researchers have also examined the relationship between adolescent employment and substance use (Bachman & Schulenberg, 1993; Boyd, 1988; Greenberger & Steinberg; Jenkins, 1996; Mortimer, Finch, Ryu, Shanahan, & Call, 1996; Mortimer, Finch, Shanahan & Ryu, 2000; Mortimer & Johnson; Resnick et al., 1997; Safron et al.; Steinberg & Dornbusch; Steinberg, Fegley, & Dornbusch, 1993). This study will examine the relationship, if any, between extent of participation in extracurricular activity together with hours employed and reported substance use by adolescents.

In an early study examining the who, what, why, and why not of student activity participation, Buser et al. (1975) surveyed 2,000 students from 25 different Illinois high schools in the spring of 1973. The descriptive study found that the most common reason for students' nonparticipation in extraclass activities was their

employment outside of school, which the students rated as being extremely or highly important.

Consistent with the findings of Buser et al. (1975), Greenberger and Steinberg's (1986) study found young workers to indicate that commitment to a part-time job interfered with participation in extracurricular activities, because such activities were usually scheduled during adolescents' prime work hours. The Greenberger and Steinberg study was conducted at four high schools in Orange County, California, in 1978. The target sample for this cross-sectional study included 211 10th and 11th grade workers who were compared with 319 youth who had never held a steady job.

Likewise, Hedgpeth's (1981) descriptive analysis found that extracurricular participants were more likely than nonparticipants to have no employment. 52% of the participants in school extracurricular activities were employed compared to 59% of nonparticipants in school extracurricular activities. 62% of the participants in outside school extracurricular activities were employed compared to 68% of the nonparticipants outside school. The sample for survey study consisted of 1,063 students in grades 10, 11, and 12 in Arlington, Texas.

Steinberg and Dornbusch (1991) examined the relation between part-time employment and adolescent behavior and development in a heterogeneous sample of approximately 4,000 15-18 year olds (six high schools in northern California, and three in Wisconsin). The researchers, using multiple analyses of variance, examined relations between weekly hours of employment and the outcome variables of interest. Hours of employment were treated as a five-level independent variable (not employed, 1-10 hr, 11-15 hr, 16-20 hr, more than 20 hr). Steinberg and Dornbusch also conducted post hoc Scheffe' tests to examine specific contrasts among workers in adjacent hours categories. The study showed that students who worked more hours each week were significantly ($p < .0001$) less involved in extracurricular activities, among other school-related variables.

A more recent study by Safron et al. (2001) examined adolescents' part-time work intensity and its relation to participation in various activities and uses of time. Nationally representative data were drawn from the 1991-1998 Monitoring the Future project from 8th, 10th, and 12th grade students (overall $N \approx 380,000$). Using multiple classification analyses, the researchers found work intensity to be moderately and negatively related to sports

participation for both males and females. This relationship was found to be generally linear in the 10th and 12th grades. For 10th and 12th grade females the decline in formal sports participation was fairly steep, especially for those working more than 15 hours per week. One interesting deviation from linearity was noted. Those with the highest rates of participation in sports tended to be those working 1-5 hours per week, whereas those not working at all were often similar to those who worked 6-10 or even 11-15 hours per week in terms of their rates of participation in active and sports teams.

Mortimer and Johnson's (1998) findings were contrary to much of the findings on adolescent employment and extracurricular participation. Results reported were from an eight-year ongoing study (The Youth Development Study) of the effects of work experience on adolescent mental health and development. Of the initial 1,000 participants, 93% were retained over the four-year high school period (1988-1991), and almost 78% were retained through the survey in 1995. The researchers used multiple classification analyses to examine the data. A five-category typology was formed by cross-classifying work duration and intensity including a nonworking group. With regard to extracurricular participation, boys in the short

duration (employed <18 of 24 months) and high intensity (employed >20 hours per week) group had the most extracurricular involvement, more than 13 hours per week on the average, during their senior year. Boys in the short duration and low intensity (employed <20 hours per week) group also had relatively high extracurricular involvement (close to 11 hours per week). The long duration (employed >18 of 24 months) and low intensity group spent 9.3 hours per week in extracurricular pursuits. Those who spent the most time working during high school (those in the long duration/high intensity pattern) reported the least extracurricular involvement (less than 6 hours per week). Of particular interest was the relative lack of extracurricular participation on the part of nonworking boys (7.8 hours per week).

Research studies using nationally representative samples to examine adolescent employment with reported substance use have produced fairly consistent results (Bachman & Schulenberg, 1993; Greenberger & Steinberg, 1986; Resnick, et al., 1997; Safron et al., 2001).

Greenberger and Steinberg (1986) found that exposure to job stress was consistently related to alcohol and marijuana use. Interestingly, the relationship between job stress and frequency of use of alcohol and marijuana

persisted even after controlling for the amount of income available to youngsters. Also of interest, the analyses of longitudinal data implied an actual causal link between exposure to job stress and sex-specific substance use: frequency of alcohol use among boys and marijuana use among girls. The researchers found that exposure to job stressors was not related to the use of drugs other than marijuana and was related inconsistently to cigarette smoking. The Greenberger and Steinberg study was conducted at four high schools in Orange County, California, in 1978. The target sample for this cross-sectional study included 211 10th and 11th grade workers who were compared with 319 youth who had never held a steady job.

Using senior year data from over 70,000 respondents drawn from the Monitoring the Future project from the classes of 1985-1989, Bachman and Schulenberg (1993) examined employment and hours of work with use of drugs, among other variables. Using multiple classification analyses, Bachman and Schulenberg found positive bivariate relationships between hours of work and use of each drug including cigarettes, alcohol, marijuana, cocaine, and amphetamines. The researchers also found that the patterns of relationship between hours of work and each dimension of drug use were in most respects fairly close to linear, both

before and after controlling for background and educational success. The most general interpretation of the drug use finding was that part-time work was related to drug use, and the more hours worked, the greater the likelihood of use.

By means of interview data from the National Longitudinal Study on Adolescent Health, the objective of the research by Resnick et al. (1997) was to identify risk and protective factors at the family, school, and individual levels as they relate to 4 domains of adolescent health and morbidity: emotional health, violence, substance use, and sexuality. An analysis sample of 11,572 adolescents in grades 7 through 12 were drawn from an initial national school survey of 90,118 adolescents from 80 high schools plus their feeder middle schools. The researchers used multiple linear regression and controlled for the effects of key demographic variables: sex, race, ethnicity, family structure, and poverty status. The study showed that among older students, working 20 or more hours per week was associated with increased cigarette use. Among 9th-12th grade students, increased alcohol use and marijuana use were associated with working 20 or more hours per week.

Similarly, Safron et al. (2001) found work intensity to be positively related to use of alcohol, binge drinking,

smoking cigarettes, and marijuana, hashish use. As well, social time use and health behaviors were found to partially mediate the relationship between work hours and substance use. The researchers found long work hours to be associated with more unstructured social activities as well as greater levels of substance use. Data for this study were drawn from the Monitoring the Future Project, with the sample consisting of approximately 380,000 8th, 10th, and 12th grade students in the classes of 1991-1998. Multiple classification analyses were used to examine the survey data.

With a heterogeneous sample of approximately 4,000 15-18 year olds (six high schools in northern California and three in Wisconsin), Steinberg and Dornbusch's (1991) research looked at the relation between part-time employment and reported frequency of cigarette, alcohol, marijuana, and other drug use, among other variables. Multiple analyses of variance showed that students who worked more hours each week reported significantly ($p < .001$) higher rates of drug and alcohol use. Post hoc contrasts of adjacent groups revealed a significant contrast in the analysis of drug use between students who worked 10 hours per week and those whose time commitment was greater. The analysis of effect sizes indicated that the magnitude of

difference in drug use between students who worked more than 20 hours per week and those who worked fewer than 11 hours was not trivial.

The research by Steinberg et al. (1993) examined the over-time relation between school-year employment and adolescent adjustment in a heterogeneous sample of approximately 1,800 high school sophomores and juniors in northern California and Wisconsin. Data were collected during the 1987-1988 and 1988-1989 school years through self-report surveys. Survey data were examined through a series of multiple analyses of variance and analyses of covariance. The study showed that before entering the workplace, adolescents who chose to work tended not to be engaged in more drug use than their peers. However, entering the workforce, especially at more than 20 hours weekly, led to more substance use. With specific regard to drug and alcohol use, the difference attributable to working was not trivial: By the time of the 1-year follow-up, previously nonemployed adolescents who had been working more than 20 hours weekly were using drugs and alcohol 33% more often than their counterparts who had remained nonemployed. Steinberg et al. found that when adolescents who were working in excess of 20 hours weekly decreased their work hours or dropped out of the labor force entirely

their use of drugs and alcohol did not immediately decline. According to the researchers, this finding suggests that the increase in drug and alcohol use among workers occurs during the first year of employment and may stabilize at the higher level. One hypothesis the researchers provided was that initial employment helps to establish a higher standard of living (so to speak) that is not so easily given up.

Mortimer, Finch, Ryu et al. (1996) examined the effects of work intensity on adolescent mental health, academic achievement, and behavioral adjustment. Questionnaire data were collected yearly from an initial panel of 1,000 randomly selected ninth graders (14-15 years old) in St. Paul, Minnesota. The representative panel was studied prospectively over a 4-year period with minimal attrition. The survey data were examined with measures of central tendency and dispersion, correlations, and regression analyses incorporating key control and lagged variables. The researchers found little evidence that high-intensity employment fostered smoking. However, consistent with other studies, students who worked at higher intensity engaged in more alcohol use. According to Mortimer, Finch, Ryu et al., the methodological strengths of this research

provide strong evidence that adolescent work fosters alcohol use, and alcohol use increases with work hours.

Steinberg et al. (1993) found nonworkers generally to be better adjusted than adolescents with moderate work hours who in turn were better adjusted than adolescents with long work hours. This finding corroborates with Steinberg and Dornbusch's (1991) conclusion that the correlates of school-year employment are generally negative.

Bachman and Schulenberg (1993) argued that the best way to avoid students working long hours in part-time jobs would be to improve their interest in and commitment to school, so they would not wish to over invest in work at the possible expense of their schooling. Additionally, the expense of one's health with regard to substance use must be a vital consideration when taking into account adolescent work hours.

This section provided a review of literature on adolescent employment and extracurricular involvement and adolescent employment and substance use. Research findings on adolescent work and extracurricular participation have been mixed. While several studies have shown that students involved with higher intensity work tend to be less involved in extracurricular activities (Safron et al.,

2001; Steinberg & Dornbusch, 1991), another study found students in high intensity and short duration employment had the most extracurricular involvement (Mortimer & Johnson, 1998). Studies examining adolescent employment with substance use have produced fairly consistent results. That is, part-time work is related to drug use (Bachman & Schulenberg, 1993; Greenberger & Steinberg, 1986; Steinberg et al., 1993). As well, the more hours worked, the greater the use (Bachman & Schulenberg; Mortimer, Finch, Ryu et al., 1996; Resnick et al., 1997; Safron et al.; Steinberg & Dornbusch; Steinberg et al.).

Conclusion of Literature Review

The review of the literature examined investigations related to the five domains of the knowledge base that inform this study. The areas of focus included: (a) adolescence and factors of risk and protection, (b) adolescent substance use and nonuse, (c) adolescent participation in school sponsored and/or community sponsored extracurricular activity, (d) adolescent participation in school sponsored and/or community sponsored sport and athletic activity, and (e) adolescent participation in extracurricular activity together with after-school and/or weekend employment.

Adolescence is a critical period of transition when youths' choices and behaviors will have consequences for future success and opportunity (Muller & Frisco, 1998). Understanding why some adolescents never use licit and illicit substances, while others experiment with substance use, and still others regularly use and misuse these substances is ongoing. Evidence indicates that substance use among young people is not a fading matter. Given the consequences of use, adolescent substance use remains an issue of high public concern and policy attention.

Risk and protective factor research has been an avenue of investigation into adolescent substance use. According to Hawkins et al. (1992), identifying protective processes or specifying particular interactions that produce an enduring shield or resilience in the face of risk for negative outcomes has direct relevance for risk-focused drug abuse prevention. It suggests that the goals of risk-focused prevention may be accomplished through direct efforts at risk reduction and through the enhancement of protective factors that moderate or mediate the effects of exposure to risk (Hawkins et al.).

The concept of risk and protective factors relating to adolescent substance use is complex and while many variables have been studied, examination of the

relationship between the extent of participation as measured in hours spent in school sponsored and/or community sponsored sport and athletic activity and school sponsored and/or community sponsored nonsport activity and substance use among middle and high school students has been limited. Examination of the relationship, if any, between reported use of substances and hours spent participating in both sport and/or nonsport activity and hours employed has been even more limited.

Identifying these variables as risk and/or protective factors as well as identifying the level, if any, at which a factor transfers from one classification to the next, such as a protective factor becoming a risk factor, will provide direct relevance for drug abuse prevention. To the extent that protective factors are identified that moderate or mediate the effects of exposure to risk, strategies can seek to address risk by enhancing these protective factors (Hawkins et al., 1992). Better understanding of protective factors is especially opportune in this time of limited financial resources for school programs and heightened perception of the need for accountability in school programs.

The review of the literature included studies that examined substance use with extracurricular participation,

both nonsport and sport activity, and employment. The review of literature reveals the differences in study outcomes.

Considering the research literature as a whole, both participants and nonparticipants in extracurricular activity have been found to use drugs. The substance and extent of use has been found to vary among participants and nonparticipants, with the activity, and by gender. As with extracurricular participation, research findings related to employment and extracurricular participation and employment and substance use have varied based on intensity of work, duration of work, job stress, and gender.

While many aspects of adolescent substance use have been studied, examination of the relationship between the variables of this study has been limited. The literature supports the need for an exploration of the primary question of this study: "What is the relationship, if any, between students' reported use of substances and the extent of participation in sport or nonsport activity and extracurricular activity together with employment?"

Chapter Three

Design and Methodology

The purpose of this research was to examine the relationship, if any, between students' reported use of substances including cannabis, depressants, hallucinogens, inhalants, narcotics, steroids, stimulants, misuse of prescription drugs and/or over-the-counter drugs and extent of participation in school sponsored and/or community sponsored sport and athletic activity, school sponsored and/or community sponsored nonsport activity, and school sponsored and/or community sponsored sport and/or nonsport activity together with extent of employment. The data used for this study was from the 2001-2002 Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge, Attitudes, and Behaviors for Duval County, Florida (Wilburn & Wilburn, 2002).

Research Design

The research questions for this study were investigated using a causal-comparative design. Causal-comparative method seeks to discover possible causes and effects of a behavior pattern or personal characteristic

by comparing individuals in whom it is present with individuals in whom it is absent or present to a lesser degree (Gall, Borg, & Gall, 1996).

Research Questions

The primary question of the study was: "What is the relationship, if any, between students' reported use of substances and the extent of participation in extracurricular activity and extracurricular activity together with employment?" The study considered student grade level, student gender, and student race/ethnicity as moderator variables. The research questions were as follows:

1. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student grade level?

Ho: There is no statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student grade level.

2. Is there a statistically significant relationship between secondary school students' self-reported

substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student gender?

Ho: There is no statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student gender.

3. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student race/ethnicity?

Ho: There is no statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student race/ethnicity.

4. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student grade level?

Ho: There is no statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student grade level.

5. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student gender?

Ho: There is no statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student gender.

6. Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student race/ethnicity?

Ho: There is no statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school

sponsored and/or community sponsored nonsport activity by student race/ethnicity.

7. Is there a statistically significant relationship between the number of hours a secondary school student participates in school sponsored and/or community sponsored sport and athletic activity together with hours employed after school and/or on weekends and the students' self-reported substance use?

Ho: There is no statistically significant relationship between the number of hours a secondary school student participates in school sponsored and/or community sponsored sport and athletic activity together with hours employed after school and/or on weekends and the students' self-reported substance use.

8. Is there a statistically significant relationship between the number of hours a secondary school student participates in school sponsored and/or community sponsored nonsport activity together with hours employed after school and/or on weekends and the students' self-reported substance use?

Ho: There is no statistically significant relationship between the number of hours a secondary school student participates in school sponsored and/or community sponsored nonsport activity together with hours

employed after school and/or on weekends and the students' self-reported substance use.

Variables

Dependent variable.

The dependent variable for this study was the students' self-report of use of the following substances: (a) alcohol such as beer, wine, or hard liquor; (b) wine coolers and fruit-flavored alcohol drinks; (c) cigarettes, cigars (smoking tobacco); (d) smokeless tobacco; (e) marijuana, hashish; (f) inhalants; (g) amphetamines; (h) barbiturates; (i) cocaine, crack cocaine; (j) club drugs such as GHB, Ecstasy; (k) depressants such as Xanax; (l) hallucinogens other than LSD such as mescaline, PCP, peyote, mushrooms; (m) heroin; (n) ketaminehydrochloride; (o) LSD; (p) methamphetamines; (q) narcotics; (r) rohypnol; (s) steroids; (t) tranquilizers such as Librium, Valium, Miltown; (u) misuse of prescription drugs such as Ritalin, Aderol; (v) over-the-counter drugs, which include herbals, ephedrine, diet pills, stay-awake pills, sleeping aids, cough medicines.

This variable was measured by self-reported frequency of use; "I have never used in my life," "I have tried once or twice, but I do not use regularly," "I have used in the past 30 days," "I use almost every week," "I use almost

every day." The categories used to report frequency of use of a substance on the Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge, Attitudes, and Behaviors (Wilburn & Wilburn, 2002) were designed to provide evaluation information related to the program objectives of the Safe and Drug Free School Program. This variable is a categorical variable with an ordinal level of measurement.

Independent variables.

The independent variable, hours of participation per week in school sponsored and/or community sponsored sport and athletic activity, is a categorical variable with an ordinal level of measurement. The survey categories identifying student participation in school sponsored and/or community sponsored sport and athletic activity were "none, I am not in an organized sport," "1-5 hours per week," "6-10 hours per week," "11 or more hours per week."

The independent variable, hours of participation per week in school sponsored and/or community sponsored nonsport activity such as clubs, music, church or other youth groups, is a categorical variable with an ordinal level of measurement. The survey categories identifying student participation in school sponsored and/or community sponsored nonsport activity were "none, I do not

participate," "1-5 hours per week," "6-10 hours per week," "11 or more hours per week."

The independent variable, hours of after school and/or weekend employment, is a categorical variable with an ordinal level of measurement. The survey categories identifying student employment were "no, I do not have a job," "yes, I work 5-10 hours per week," "yes, I work 11-20 hours per week," yes, I work more than 20 hours per week."

Moderator variables.

The moderator variable, homeroom grade level included 6th grade, 7th grade, 8th grade, 9th grade, 10th grade, 11th grade, 12th grade. This variable is a categorical variable with an ordinal level of measurement.

The moderator variable, student gender included male, female. This variable is a categorical variable with a nominal level of measurement.

The moderator variable, student race/ethnicity included White (not of Hispanic origin), Black (not of Hispanic origin), Hispanic, American Indian or Alaskan Native, Asian or Pacific Islander, Multiracial. This variable is a categorical variable with a nominal level of measurement.

Subjects

Setting for This Study

This study was conducted by means of data collected for an annual survey of knowledge, attitudes, and behaviors for substance use and violence in Duval County, Florida, public school district. This county has participated in the alcohol, tobacco, and other drug survey since 1987 consequent to the findings of a community study in 1986 by the Jacksonville Community Council, Inc. This study (JCCI, 1986) indicated a high incidence of mental health and drug abuse problems among Jacksonville youth and reported that the severity of the problem coupled with too little money to provide services to meet the need for treatment and prevention programs demanded community action. This county also participates in the Safe and Drug Free Schools and Communities Program, for which the survey serves as an evaluation component.

Sample Population

The data used for this study were taken from the 2001-2002 Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge Attitudes, and Behaviors (Wilburn & Wilburn, 2002). The sample consisted of males and females who attended grade 6 through 12 in Duval County, Florida,

public schools. The total number of completed valid surveys was 24,699, or 51.9% of the available population of 47,586.

The survey participants were self-selected. The students chose to participate or not to participate following passive parental consent.

Research Instrument

The 2001-2002 Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge, Attitudes, and Behaviors (Wilburn & Wilburn, 2002) was used to measure students' reported substance use in relation to extent of participation in extracurricular activity and extracurricular activity together with employment. The research instrument is found in Appendix A.

This survey has been utilized in northeast Florida since 1987, with annual modifications, in conducting an ongoing community-wide assessment of adolescent substance use (K. Wilburn, personal communication, October 22, 2002). The survey is utilized as a needs assessment tool for Duval County School District's Safe and Drug Free Schools Program aiding in the program planning process that addresses alcohol, tobacco, and other drug use prevention and violence prevention ("Duval County Schools Safe and Drug-Free Schools Program," n.d.).

The proposal to examine the independent variables of interest in this study with reported substance use among middle and high school students was made by this researcher to Ms. Kathleen Bowles, Supervisor of Health Education for Duval County Public Schools and to Drs. Sharon T. and Kenneth Wilburn, the co-authors of the survey instrument. Ms. Bowles and Drs. Wilburn and Wilburn agreed to allow the addition of the variables of interest for this study to the 2001-2002 survey. The variables of interest included hours per week participating in school and/or community sponsored sport and athletic activity, hours per week participating in school and/or community sponsored nonsport activity, and hours per week employed. Permission for access to the survey data was granted to this researcher. An SPSS data file with no identifying labels was provided for analysis pertinent to proposed study.

Validity

According to Dr. Kenneth Wilburn (personal communication, September 27, 2002), the revised Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge, Attitudes, and Behaviors for 2001-2002 was reviewed for content validity and face validity. A group of six middle school and six high school teachers and counselors, seventeen Duval County Safe and Drug Free School Program

counselors, and nine middle grade drug prevention specialists with the Northeast Florida Educational Consortium's middle grades project participated in the review. Following the process, a pilot test for readability and understandability of the revised survey was conducted in two middle school classes of 40-50 students and two high school classes of 60-70 students in Duval County public schools.

Reliability

Per Dr. Kenneth Wilburn (personal communication, September 27, 2002), reliability studies are not conducted for this survey instrument. The survey is reviewed for content and face validity.

Pilot Study

The pilot study for the revised survey was conducted in three public middle schools, four public high schools, and one private, parochial high school. The pilot study suggested that the readability of the survey was adequate for most students in grades 6-12, the survey directions were clear, the 50 minutes of time allotted for completion was sufficient, and the survey was able to be properly administered by a classroom teacher.

Methods

Protection of Human Subjects

This study utilized secondary data. Primary data collection was supervised by Kathleen Bowles, Supervisor of Health Education for Duval County Public Schools, and was conducted in accordance with the school system's policy for student participation. Prior to survey administration, notification letters were distributed among the sample with instructions to give to their parent(s)/guardian(s). This allowed for any parent(s)/guardian(s) to request for nonparticipation of their secondary school student(s).

Confidentiality

Survey procedures were designed to protect the students' privacy by allowing for anonymous and voluntary participation. Passive parental permission was obtained prior to survey administration in accordance with district procedures. An SPSS data file with no identifying labels was provided to this researcher for analysis pertinent to this study.

Data Collection

Following passive parental consent, the survey was given to the secondary students in their health or science class. As participation was voluntary, the students were able to choose to participate or not to participate in the

survey. The teachers were provided written directions for survey administration (refer to Appendix C) and a survey administrator's processing form (refer to Appendix D). The teachers administering the survey deposited the completed surveys and survey materials in the main office for collection by the school's test coordinator, who forwarded them via the district's inter-mail system to the Duval County School District Supervisor of Health Education. After all surveys were collected and accounted for in the district office, an independent contractor collected the completed student answer forms and scanned the forms using Teleform v. 6.0, which creates a graphic image of each survey form. Following scanning, the survey data files were forwarded to the survey directors who reviewed the data and eliminated invalid answer forms (i.e., answer forms that were unreadable, coded incorrectly by students such as those who bubble only answer A throughout, students who responded to item #99 as either providing answers that were c) not very accurate and honest or d) not at all accurate and honest, students who responded to using Nosedol (item #41), a nonexistent drug). The data files were converted to SPSS format, with the SPSS file constructed by means of each student answer form representing a case and each survey item representing a variable. The file had no

identifying labels (i.e., student name, student number, survey administrator name, school name).

Data Analysis

The data obtained from secondary students on the 99-item survey were measures of self-report. Research has consistently shown that the self-report questionnaire technique is reliable and valid in measuring adolescent delinquent, drug, and drinking behavior (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979).

This study considered responses to 28 of the 99-item questionnaire. Six of the items considered determined student grade level, gender, race/ethnicity, hours per week spent in school-sponsored and/or community sponsored athletics/sports, hours per week spent in school-sponsored and/or community sponsored nonsport activity (music, clubs, scouting, church or other youth groups), and hours per week employed after school and/or on weekends; 22 of the items were used to measure reported substance use.

Analyses were conducted to test the variables stated in the research questions and their interactions for statistical significance. SPSS 10.0 was used for crosstabulation and chi-square tests. The distribution of the test statistic is only approximately χ^2 , but the approximation is adequate for sufficiently large sample

sizes (Freund & Wilson, 2003). The alpha level was set at the .05 level. SAS 9.1 was used for loglinear analysis. The outcomes of loglinear analysis were not reported as the findings provided no significant contributions to the crosstabulation and chi-square results.

Delimitations

The delimitations of this study were as follows:

1. The sample of secondary school subjects consisted of males and females who attend grade 6 through 12 in Duval County public schools.
2. The data used for analyses for this study included student responses to the 2001-2002 Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge, Attitudes, and Behaviors (Wilburn & Wilburn, 2002).

Limitations

The limitations of this study were as follows:

1. The participants were self-selected; they chose whether or not to participate in the survey. This sampling may result in a more heterogeneous or more homogeneous sample than is actually present in the population. In turn, this may lead to more spurious correlations; a correlation that

overrepresents or underrepresents the true relationship (McMillan & Schumacher, 1997).

2. Reliability studies were not conducted for the Alcohol, Tobacco, Other Drugs and Violence Survey: Knowledge, Attitudes, and Behaviors.
3. Classroom teachers administered the survey and collected the answer forms upon completion.
4. The data obtained from secondary students were measures of self-report.
5. Cell frequencies in crosstabulation varied. Chi-square tests were completed without program warning regarding small cell frequencies. Per Freund and Wilson (2003), minimum expected cell frequencies exceeding five are considered adequate, but it has been shown that up to 20% of the expected frequencies can be smaller than 5 and cause little difficulty where there are a large number of cells.
6. Institution variables such as school size, socioeconomic status, dropout rate, mobility rate, extracurricular offerings, and environment were not of consideration and may act as influencing variables in the study.
7. Findings from this study are specific to the population studied, and generalizability to other

populations may be limited.

Summary

Contemporary explanations of complex human behavior are increasingly predicated on the interaction of personal/individual attributes with social/contextual attributes (Jessor, 1992). The search to understand and influence substance use among adolescents is one behavior of such complexity, and numerous constructs have been researched in attempts to account for substance use among adolescents. The search for one causal influence to account for youthful drug use has always failed (Newcomb et al., 1987).

The problem of substance use among our youth persists, and new issues continue to arise. In order to provide adolescents the greatest protective opportunities against substance use, it is vital to realize, to the greatest extent possible, the risk and protective factors associated with substance use and nonuse. Further, it is essential to identify at what level, if any, at which a factor transfers from one classification to the next, such as a protective factor becoming a risk factor.

This study examined the relationship between the surveyed secondary students' reported use of substances and the extent of participation in extracurricular activity and

extracurricular activity together with employment. This study examined extent of student participation in hours per week spent in school-sponsored and/or community-sponsored sport and athletic activity and nonsport activity and after-school and/or weekend employment.

The findings of the investigation are presented in Chapter Four.

Chapter Four

Analysis of Data

The purpose of this study was to examine the relationship, if any, between students' reported use of substances and extent of participation in school sponsored and/or community sponsored sport and athletic activity and nonsport activity. This study also looked at reported substance use and extent of student employment. Student grade level, student gender, and student race/ethnicity were examined as moderator variables.

This study was conducted by means of data collected for an annual survey of knowledge, attitudes, and behaviors for substance use and violence in the Duval County, Florida, Public Schools. The instrument used was the 2001-2002 Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge, Attitudes, and Behaviors (Wilburn & Wilburn, 2002). The sample consisted of males and females who attended grade 6 through 12 in Duval County, Florida, public schools. The total number of completed valid surveys was 24,699, or 51.9% of the available population of 47,586.

Frequency Distributions

The frequency distributions for the survey respondents' grade level, gender, and race/ethnicity are provided in Table 1, Table 2, and Table 3, respectively.

Table 1

Grade Level of Survey Respondents

Grade	Frequency	Percent
6	4087	16.8
7	3763	15.4
8	3209	13.2
9	4407	18.1
10	3604	14.8
11	2876	11.8
12	2347	9.6
Other	98	.4
Total	24391	100.0

Table 2

Gender of Survey Respondents

Gender	Frequency	Percent
Male	11966	49.1
Female	12403	50.9
Total	24369	100.0

Table 3

Race/Ethnicity of Survey Respondents

Race	Frequency	Percent
White	12121	49.6
Black	7892	32.3
Hispanic	1426	5.8
American Indian/ Alaskan Native	431	1.8
Asian/Pacific Islander	1060	4.3
Multi-racial	1491	6.1
Total	24421	100.0

As indicated, there is a substantial variance in the percentage of student respondents by race as shown in Table 3. Responses by the White sample population (49.6% of total population) and the Black sample population (32.3% of total population), which comprise 81.9% of the total sample, are denoted in the text. Given the small percentage of respondents of Hispanic, American Indian/Alaskan Native, Asian/Pacific Islander, and Multi-racial ethnicities, the decision was made to focus analyses on the predominant racial classifications of White and Black.

Table 4, Table 5, and Table 6 give the frequency distributions for the independent variables. These include

student participation in sport/athletic activity, nonsport activity participation, and participation in employment.

Table 4

Student Sport/Athletic Participation

Extent of Participation	Frequency	Percent
None	10953	44.8
1-5 hours	6217	25.4
6-10 hours	4127	16.9
11+ hours	3172	13.0
Total	24469	100.0

Table 5

Student Nonsport Activity Participation

Extent of Participation	Frequency	Percent
None	9809	40.3
1-5 hours	9628	39.5
6-10 hours	3112	12.8
11+ hours	1805	7.4
Total	24354	100.0

Table 6

Student Employment

Extent of Participation	Frequency	Percent
None	17392	71.2
5-10 hours	2692	11.0
11-20 hours	2334	9.6
>20 hours	2005	8.2
Total	24423	100.0

The frequency distributions of the students' reported use of each substance revealed a wide range in percentage of any reported use. The frequency distributions of drugs showing a total incidence of less than 25% use among students are found in Appendix E. The frequency distributions of substances that showed an incidence of use of greater than 25% are provided in tables as follows:

- Table 7 Alcohol: Beer, Wine, Liquor;
- Table 8 Wine Coolers, Fruit-Flavored Alcohol Drinks;
- Table 9 Smoking Tobacco (Cigarettes, Cigars);
- Table 10 Marijuana, Hashish.

Table 7

Student Use of Alcohol: Beer, Wine, Liquor

Extent of Use	Frequency	Percent
Never used in life	8931	36.5
Tried once or twice but do not use regularly	10100	41.3
Used in past 30 days	3389	13.9
Use almost every week	1387	5.7
Use almost every day	643	2.6
Total	24450	100.0

Table 8

*Student Use of Alcohol: Wine Coolers, Fruit-Flavored
Alcohol Drinks*

Extent of Use	Frequency	Percent
Never used in life	8889	36.5
Tried once or twice but do not use regularly	10463	43.0
Used in past 30 days	3384	13.9
Use almost every week	1033	4.2
Use almost every day	582	2.4
Total	24351	100.0

For the analysis of student participation in activity and employment, the variable beer, wine, and liquor and the variable wine coolers and fruit-flavored alcohol drinks were recoded into the same variable. The label of this variable is alcohol.

Table 9

Student Use of Smoking Tobacco

Extent of Use	Frequency	Percent
Never used in life	14109	57.9
Tried once or twice but do not use regularly	6155	25.2
Used in past 30 days	1679	6.9
Use almost every week	804	3.3
Use almost every day	1641	6.7
Total	24388	100.0

Table 10

Student Use of Marijuana, Hashish

Extent of Use	Frequency	Percent
Never used in life	16432	67.3
Tried once or twice but do not use regularly	3819	15.7
Used in past 30 days	1671	6.8
Use almost every week	993	4.1
Use almost every day	1486	6.1
Total	24401	100.0

Sport and Athletic Participation

Analysis first examined student participation in school and/or community sponsored sport and athletic activity by grade level. Analyses were then conducted to assess the relationship between respondents' reported use of alcohol, cigarettes/cigars, and marijuana/hashish and extent of participation in sport and athletic activity by grade level, gender, and ethnicity. The alpha level was set at .05.

Sport/Athletic Participation by Grade Level

Crosstabulations of sport participation by respondent grade level are found in detail in Appendix F. Table 11

represents a summary of these findings, the percentage of sport participants within the respondent's grade.

Table 11

Sport/Athletic Participation by Grade Level

Grade	<u>Sport/Athletic Participation</u>			
	None	1-5 Hours	6-10 Hours	11+ Hours
6	42.9%	32.6%	15.1%	9.4%
7	39.8%	29.8%	17.7%	12.7%
8	40.0%	27.8%	19.6%	12.5%
9	43.8%	25.3%	17.5%	13.4%
10	46.4%	21.3%	16.9%	15.5%
11	49.8%	19.5%	16.2%	14.4%
12	55.6%	17.0%	14.5%	12.9%

Sport/Athletic Participation and Reported Substance Use by Grade Level

Crosstabulations of students' self-reported use of substances and extent of participation in school sponsored and/or community sponsored sport and athletic participation by student grade level are presented in tables 12 through 32.

Table 12

Sixth Grade Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	809	761	91	32	45	1738
	%	46.5	43.8	5.2	1.8	2.6	100.0
1-5	Count	614	613	59	21	13	1320
	%	46.5	46.4	4.5	1.6	1.0	100.0
6-10	Count	273	277	32	20	12	614
	%	44.5	45.1	5.2	3.3	2.0	100.0
11+	Count	136	174	31	14	27	382
	%	35.6	45.5	8.1	3.7	7.1	100.0
Total	Count	1832	1825	213	87	97	4054
	%	45.2	45.0	5.3	2.1	2.4	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 4054) = 74.663, p = .000$

Table 13

Seventh Grade Student Reported Use Of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	538	715	153	38	36	1480
	%	36.4	48.3	10.3	2.6	2.4	100.0
1-5	Count	396	551	109	31	25	1112
	%	35.6	49.6	9.8	2.8	2.2	100.0
6-10	Count	207	347	58	28	19	659
	%	31.4	52.7	8.8	4.2	2.9	100.0
11+	Count	136	212	60	32	29	469
	%	29.0	45.2	12.8	6.8	6.2	100.0
Total	Count	1277	1825	380	129	109	3720
	%	34.3	49.1	10.2	3.5	2.9	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 3720) = 57.033, p = .000$

Table 14

Eighth Grade Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	351	616	196	64	50	1277
	%	27.5	48.2	15.3	5.0	3.9	100.0
1-5	Count	260	409	139	51	24	883
	%	29.4	46.3	15.7	5.8	2.7	100.0
6-10	Count	134	311	123	37	16	621
	%	21.6	50.1	19.8	6.0	2.6	100.0
11+	Count	105	192	59	25	19	400
	%	26.3	48.0	14.8	6.3	4.8	100.0
Total	Count	850	1528	517	177	109	3181
	%	26.7	48.0	16.3	5.6	3.4	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 3181) = 22.993, p = .028$

Table 15

Ninth Grade Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	476	891	356	128	52	1903
	%	25.0	46.8	18.7	6.7	2.7	100.0
1-5	Count	260	548	194	63	31	1096
	%	23.7	50.0	17.7	5.7	2.8	100.0
6-10	Count	161	358	157	62	25	763
	%	21.1	46.9	20.6	8.1	3.3	100.0
11+	Count	130	265	105	49	35	584
	%	22.3	45.4	18.0	8.4	6.0	100.0
Total	Count	1027	2062	812	302	143	4346
	%	23.6	47.4	18.7	6.9	3.3	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 4346) = 29.648, p = .003$

Table 16

Tenth Grade Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	376	774	313	146	48	1657
	%	22.7	46.7	18.9	8.8	2.9	100.0
1-5	Count	154	353	167	63	22	759
	%	20.3	46.5	22.0	8.3	2.9	100.0
6-10	Count	100	250	143	83	27	603
	%	16.6	41.5	23.7	13.8	4.5	100.0
11+	Count	111	236	133	42	25	547
	%	20.3	43.1	24.3	7.7	4.6	100.0
Total	Count	741	1613	756	334	122	3566
	%	20.8	45.2	21.2	9.4	3.4	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 3566) = 41.978, p = .000$

Table 17

Eleventh Grade Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	288	625	338	132	35	1418
	%	20.3	44.1	23.8	9.3	2.5	100.0
1-5	Count	102	243	142	56	13	556
	%	18.3	43.7	25.5	10.1	2.3	100.0
6-10	Count	83	183	122	55	17	460
	%	18.0	39.8	26.5	12.0	3.7	100.0
11+	Count	73	174	97	50	16	410
	%	17.8	42.4	23.7	12.2	3.9	100.0
Total	Count	546	1225	699	293	81	2844
	%	19.2	43.1	24.6	10.3	2.8	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 2844) = 12.831, p = .381$

Table 18

Twelfth Grade Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	227	467	354	189	57	1294
	%	17.5	36.1	27.4	14.6	4.4	100.0
1-5	Count	70	151	104	66	8	399
	%	17.5	37.8	26.1	16.5	2.0	100.0
6-10	Count	46	115	104	53	17	335
	%	13.7	34.3	31.0	15.8	5.1	100.0
11+	Count	45	96	84	60	17	302
	%	14.9	31.8	27.8	19.9	5.6	100.0
Total	Count	388	829	646	368	99	2330
	%	16.7	35.6	27.7	15.8	4.2	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 2330) = 18.074, p = .113$

Table 19

Sixth Grade Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1350	269	51	19	54	1743
	%	77.5	15.4	2.9	1.1	3.1	100.0
1-5	Count	1058	208	23	13	20	1322
	%	80.0	15.7	1.7	1.0	1.5	100.0
6-10	Count	449	119	19	14	13	614
	%	73.1	19.4	3.1	2.3	2.1	100.0
11+	Count	255	71	12	22	22	382
	%	66.8	18.6	3.1	5.8	5.8	100.0
Total	Count	3112	667	105	68	109	4061
	%	76.6	16.4	2.6	1.7	2.7	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 4061) = 88.083, p = .000$

Table 20

Seventh Grade Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	964	337	77	35	68	1481
	%	65.1	22.8	5.2	2.4	4.6	100.0
1-5	Count	722	280	57	21	34	1114
	%	64.8	25.1	5.1	1.9	3.1	100.0
6-10	Count	449	147	34	19	14	663
	%	67.7	22.2	5.1	2.9	2.1	100.0
11+	Count	289	104	25	24	33	475
	%	60.8	21.9	5.3	5.1	6.9	100.0
Total	Count	2424	868	193	99	149	3733
	%	64.9	23.3	5.2	2.7	4.0	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 3733) = 38.049, p = .000$

Table 21

Eighth Grade Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	720	330	74	51	101	1276
	%	56.4	25.9	5.8	4.0	7.9	100.0
1-5	Count	504	237	68	32	43	884
	%	57.0	26.8	7.7	3.6	4.9	100.0
6-10	Count	348	169	60	24	21	622
	%	55.9	27.2	9.6	3.9	3.4	100.0
11+	Count	236	95	37	11	21	400
	%	59.0	23.8	9.3	2.8	5.3	100.0
Total	Count	1808	831	239	118	186	3182
	%	56.8	26.1	7.5	3.7	5.8	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 3182) = 31.050, p = .002$

Table 22

Ninth Grade Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1004	524	134	69	178	1909
	%	52.6	27.4	7.0	3.6	9.3	100.0
1-5	Count	612	318	87	35	48	1100
	%	55.6	28.9	7.9	3.2	4.4	100.0
6-10	Count	411	223	61	23	45	763
	%	53.9	29.2	8.0	3.0	5.9	100.0
11+	Count	309	168	46	22	40	585
	%	52.8	28.7	7.9	3.8	6.8	100.0
Total	Count	2336	1233	328	149	311	4357
	%	53.6	28.3	7.5	3.4	7.1	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 4357) = 30.687, p = .002$

Table 23

Tenth Grade Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	832	469	134	48	172	1655
	%	50.3	28.3	8.1	2.9	10.4	100.0
1-5	Count	378	234	69	32	47	760
	%	49.7	30.8	9.1	4.2	6.2	100.0
6-10	Count	304	178	59	21	42	604
	%	50.3	29.5	9.8	3.5	7.0	100.0
11+	Count	298	146	46	24	36	550
	%	54.2	26.5	8.4	4.4	6.5	100.0
Total	Count	1812	1027	308	125	297	3569
	%	50.8	28.8	8.6	3.5	8.3	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 3569) = 25.546, p = .012$

Table 24

Eleventh Grade Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	696	393	115	62	156	1422
	%	48.9	27.6	8.1	4.4	11.0	100.0
1-5	Count	266	159	54	22	55	556
	%	47.8	28.6	9.7	4.0	9.9	100.0
6-10	Count	240	126	41	23	33	463
	%	51.8	27.2	8.9	5.0	7.1	100.0
11+	Count	220	123	35	19	16	413
	%	53.3	29.8	8.5	4.6	3.9	100.0
Total	Count	1422	801	245	126	260	2854
	%	49.8	28.1	8.6	4.4	9.1	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 2854) = 24.828, p = .016$

Table 25

Twelfth Grade Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	592	331	126	58	189	1296
	%	45.7	25.5	9.7	4.5	14.6	100.0
1-5	Count	190	120	32	18	39	399
	%	47.6	30.1	8.0	4.5	9.8	100.0
6-10	Count	149	113	38	17	21	338
	%	44.1	33.4	11.2	5.0	6.2	100.0
11+	Count	134	95	32	12	30	303
	%	44.2	31.4	10.6	4.0	9.9	100.0
Total	Count	1065	659	228	105	279	2336
	%	45.6	28.2	9.8	4.5	11.9	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 2336) = 30.844, p = .002$

Table 26

Sixth Grade Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1526	110	32	23	50	1741
	%	87.7	6.3	1.8	1.3	2.9	100.0
1-5	Count	1184	80	28	14	13	1319
	%	89.8	6.1	2.1	1.1	1.0	100.0
6-10	Count	524	50	14	15	10	613
	%	85.5	8.2	2.3	2.4	1.6	100.0
11+	Count	292	46	9	13	23	383
	%	76.2	12.0	2.3	3.4	6.0	100.0
Total	Count	3526	286	83	65	96	4056
	%	86.9	7.1	2.0	1.6	2.4	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 4056) = 73.821, p = .000$

Table 27

Seventh Grade Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1160	178	54	40	51	1483
	%	78.2	12.0	3.6	2.7	3.4	100.0
1-5	Count	878	124	45	27	41	1115
	%	78.7	11.1	4.0	2.4	3.7	100.0
6-10	Count	519	89	27	15	11	661
	%	78.5	13.5	4.1	2.3	1.7	100.0
11+	Count	335	55	37	19	26	472
	%	71.0	11.7	7.8	4.0	5.5	100.0
Total	Count	2892	446	163	101	129	3731
	%	77.5	12.0	4.4	2.7	3.5	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 3731) = 36.045, p = .000$

Table 28

Eighth Grade Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	863	188	80	59	87	1277
	%	67.6	14.7	6.3	4.6	6.8	100.0
1-5	Count	608	146	57	28	47	886
	%	68.6	16.5	6.4	3.2	5.3	100.0
6-10	Count	387	120	58	21	36	622
	%	62.2	19.3	9.3	3.4	5.8	100.0
11+	Count	270	57	26	16	32	401
	%	67.3	14.2	6.5	4.0	8.0	100.0
Total	Count	2128	511	221	124	202	3186
	%	66.8	16.0	6.9	3.9	6.3	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 3186) = 22.683, p = .031$

Table 29

Ninth Grade Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1207	326	141	85	152	1911
	%	63.2	17.1	7.4	4.4	8.0	100.0
1-5	Count	748	177	73	41	63	1102
	%	67.9	16.1	6.6	3.7	5.7	100.0
6-10	Count	464	148	63	32	56	763
	%	60.8	19.4	8.3	4.2	7.3	100.0
11+	Count	372	91	32	36	55	586
	%	63.5	15.5	5.5	6.1	9.4	100.0
Total	Count	2791	742	309	194	326	4362
	%	64.0	17.0	7.1	4.4	7.5	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 4362) = 25.390$ $p = .013$

Table 30

Tenth Grade Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	981	310	150	90	128	1659
	%	59.1	18.7	9.0	5.4	7.7	100.0
1-5	Count	446	147	85	33	48	759
	%	58.8	19.4	11.2	4.3	6.3	100.0
6-10	Count	323	127	65	50	39	604
	%	53.5	21.0	10.8	8.3	6.5	100.0
11+	Count	322	118	57	24	29	550
	%	58.5	21.5	10.4	4.4	5.3	100.0
Total	Count	2072	702	357	197	244	3572
	%	58.0	19.7	10.0	5.5	6.8	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 3572) = 23.797, p = .022$

Table 31

Eleventh Grade Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	805	295	122	79	123	1424
	%	56.5	20.7	8.6	5.5	8.6	100.0
1-5	Count	321	99	74	32	31	557
	%	57.6	17.8	13.3	5.7	5.6	100.0
6-10	Count	266	96	42	28	31	463
	%	57.5	20.7	9.1	6.0	6.7	100.0
11+	Count	238	90	32	20	33	413
	%	57.6	21.8	7.7	4.8	8.0	100.0
Total	Count	1630	580	270	159	218	2857
	%	57.1	20.3	9.5	5.6	7.6	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 2857) = 19.906, p = .069$

Table 32

Twelfth Grade Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	683	283	124	76	131	1297
	%	52.7	21.8	9.6	5.9	10.1	100.0
1-5	Count	220	80	51	18	30	399
	%	55.1	20.1	12.8	4.5	7.5	100.0
6-10	Count	187	75	30	23	23	338
	%	55.3	22.2	8.9	6.8	6.8	100.0
11+	Count	149	66	35	20	32	302
	%	49.3	21.9	11.6	6.6	10.6	100.0
Total	Count	1239	504	240	137	216	2336
	%	53.0	21.6	10.3	5.9	9.2	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 2336) = 13.389, p = .341$

*Sport/Athletic Participation and Reported Substance Use
by Gender*

Crosstabulation outcomes of students' reported use of substances and extent of participation in school sponsored and/or community sponsored sports by gender are illustrated with tables 33 through 38.

Table 33

Male Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1384	1812	689	340	224	4449
	%	31.1	40.7	15.5	7.6	5.0	100.0
1-5	Count	980	1386	421	193	84	3064
	%	32.0	45.2	13.7	6.3	2.7	100.0
6-10	Count	557	1059	385	203	97	2301
	%	24.2	46.0	16.7	8.8	4.2	100.0
11+	Count	492	839	372	185	133	2021
	%	24.3	41.5	18.4	9.2	6.6	100.0
Total	Count	3413	5096	1867	921	538	11835
	%	28.8	43.1	15.8	7.8	4.5	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 11835) = 143.123, p = .000$

Table 34

Female Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1696	3053	1107	391	114	6361
	%	26.7	48.0	17.4	6.1	1.8	100.0
1-5	Count	880	1485	497	158	56	3076
	%	28.6	48.3	16.2	5.1	1.8	100.0
6-10	Count	448	790	353	136	36	1763
	%	25.4	44.8	20.0	7.7	2.0	100.0
11+	Count	248	510	202	90	53	1103
	%	22.5	46.2	18.3	8.2	4.8	100.0
Total	Count	3272	5838	2159	775	259	12303
	%	26.6	47.5	17.5	6.3	2.1	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 12303) = 87.268, p = .000$

Table 35

Male Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2515	994	308	166	468	4451
	%	56.5	22.3	6.9	3.7	10.5	100.0
1-5	Count	1821	785	205	99	159	3069
	%	59.3	25.6	6.7	3.2	5.2	100.0
6-10	Count	1253	644	194	88	129	2308
	%	54.3	27.9	8.4	3.8	5.6	100.0
11+	Count	1057	564	162	100	149	2032
	%	52.0	27.8	8.0	4.9	7.3	100.0
Total	Count	6646	2987	869	453	905	11860
	%	56.0	25.2	7.3	3.8	7.6	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 11860) = 142.378, p = .000$

Table 36

Female Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	3653	1667	410	177	464	6371
	%	57.3	26.2	6.4	2.8	7.3	100.0
1-5	Count	1907	772	190	74	130	3073
	%	62.1	25.1	6.2	2.4	4.2	100.0
6-10	Count	1103	434	115	52	62	1766
	%	62.5	24.6	6.5	2.9	3.5	100.0
11+	Count	690	239	74	37	68	1108
	%	62.3	21.6	6.7	3.3	6.1	100.0
Total	Count	7353	3112	789	340	724	12318
	%	59.7	25.3	6.4	2.8	5.9	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 12318) = 76.595, p = .000$

Table 37

Male Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2822	668	271	208	490	4459
	%	63.3	15.0	6.1	4.7	11.0	100.0
1-5	Count	2112	427	215	120	195	3069
	%	68.8	13.9	7.0	3.9	6.4	100.0
6-10	Count	1419	420	176	132	158	2305
	%	61.6	18.2	7.6	5.7	6.9	100.0
11+	Count	1205	359	164	115	186	2029
	%	59.4	17.7	8.1	5.7	9.2	100.0
Total	Count	7558	1874	826	575	1029	11862
	%	63.7	15.8	7.0	4.8	8.7	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 11862) = 120.768, p = .000$

Table 38

Female Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	4420	1029	433	243	251	6376
	%	69.3	16.1	6.8	3.8	3.9	100.0
1-5	Count	2295	428	199	74	78	3074
	%	74.7	13.9	6.5	2.4	2.5	100.0
6-10	Count	1256	286	122	50	50	1764
	%	71.2	16.2	6.9	2.8	2.8	100.0
11+	Count	780	166	66	35	62	1109
	%	70.3	15.0	6.0	3.2	5.6	100.0
Total	Count	8751	1909	820	402	441	12323
	%	71.0	15.5	6.7	3.3	3.6	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 12323) = 57.803, p = .000$

*Sport/Athletic Participation and Reported Substance Use
by Race/Ethnicity*

Crosstabulation outcomes of students' reported use of substances and extent of participation in school sponsored and/or community sponsored sport and athletic activity by race/ethnicity are illustrated with tables 39 through 44 in the text.

Table 39

White Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1341	2196	1089	500	161	5287
	%	25.4	41.5	20.6	9.5	3.0	100.0
1-5	Count	742	1243	532	213	48	2778
	%	26.7	44.7	19.2	7.7	1.7	100.0
6-10	Count	561	1004	500	210	52	2327
	%	24.1	43.1	21.5	9.0	2.2	100.0
11+	Count	389	699	325	177	55	1645
	%	23.6	42.5	19.8	10.8	3.3	100.0
Total	Count	3033	5142	2446	1100	316	12037
	%	25.2	42.7	20.3	9.1	2.6	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 12037) = 42.240, p = .000$

Table 40

Black Student Reported Use of Alcohol and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1171	1708	364	99	93	3435
	%	34.1	49.7	10.6	2.9	2.7	100.0
1-5	Count	818	1147	219	70	55	2309
	%	35.4	49.7	9.5	3.0	2.4	100.0
6-10	Count	304	550	130	69	37	1090
	%	27.9	50.5	11.9	6.3	3.4	100.0
11+	Count	252	439	142	44	50	927
	%	27.2	47.4	15.3	4.7	5.4	100.0
Total	Count	2545	3844	855	282	235	7761
	%	32.8	49.5	11.0	3.6	3.0	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 7761) = 101.080, p = .000$

Table 41

White Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2850	1252	396	168	627	5293
	%	53.8	23.7	7.5	3.2	11.8	100.0
1-5	Count	1663	664	189	78	184	2778
	%	59.9	23.9	6.8	2.8	6.6	100.0
6-10	Count	1386	595	183	57	111	2332
	%	59.4	25.5	7.8	2.4	4.8	100.0
11+	Count	970	414	120	62	87	1653
	%	58.7	25.0	7.3	3.8	5.3	100.0
Total	Count	6869	2925	888	365	1009	12056
	%	57.0	24.3	7.4	3.0	8.4	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 12056) = 169.625, p = .000$

Table 42

Black Student Reported Use of Smoking Tobacco and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2136	922	174	90	126	3448
	%	61.9	26.7	5.0	2.6	3.7	100.0
1-5	Count	1465	613	134	48	59	2319
	%	63.2	26.4	5.8	2.1	2.5	100.0
6-10	Count	621	332	65	50	33	1101
	%	56.4	30.2	5.9	4.5	3.0	100.0
11+	Count	522	253	62	44	49	930
	%	56.1	27.2	6.7	4.7	5.3	100.0
Total	Count	4744	2120	435	232	267	7798
	%	60.8	27.2	5.6	3.0	3.4	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 7798) = 60.385, p = .000$

Table 43

White Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	3254	853	450	282	460	5299
	%	61.4	16.1	8.5	5.3	8.7	100.0
1-5	Count	1949	356	219	107	152	2783
	%	70.0	12.8	7.9	3.8	5.5	100.0
6-10	Count	1536	401	173	114	105	2329
	%	66.0	17.2	7.4	4.9	4.5	100.0
11+	Count	1072	284	130	67	97	1650
	%	65.0	17.2	7.9	4.1	5.9	100.0
Total	Count	7811	1894	972	570	814	12061
	%	64.8	15.7	8.1	4.7	6.7	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 12061) = 111.126, p = .000$

Table 44

Black Student Reported Use of Marijuana, Hashish and Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2572	531	129	84	134	3450
	%	74.6	15.4	3.7	2.4	3.9	100.0
1-5	Count	1758	322	120	56	62	2318
	%	75.8	13.9	5.2	2.4	2.7	100.0
6-10	Count	750	197	70	33	51	1101
	%	68.1	17.9	6.4	3.0	4.6	100.0
11+	Count	624	152	58	44	55	933
	%	66.9	16.3	6.2	4.7	5.9	100.0
Total	Count	5704	1202	377	217	302	7802
	%	73.1	15.4	4.8	2.8	3.9	100.0

Note. % = percentage within sport/athletic participation.

$X^2(12, N = 7802) = 73.933, p = .000$

Nonsport Activity Participation

Student participation in school and/or community sponsored nonsport activity was first examined by grade level. Analyses were then conducted to assess the relationship between respondents' reported use of alcohol, cigarettes/cigars, and marijuana/hashish with extent of participation in nonsport by grade level, gender, and ethnicity. The alpha level was set at .05.

Nonsport Activity Participation by Grade Level

Crosstabulation of nonsport activity participation by respondent grade level is found in detail in Appendix G. Table 45 represents a summary of these findings, the percentage of participants in nonsport activity within the respondent's grade.

Table 45

Nonsport Activity Participation by Grade Level

Grade	Nonsport Activity Participation			
	None	1-5 Hours	6-10 Hours	11+ Hours
6	41.0%	42.1%	11.3%	5.6%
7	41.8%	39.4%	12.1%	6.8%
8	39.9%	39.8%	13.0%	7.3%
9	41.8%	38.2%	12.7%	7.3%
10	39.4%	40.0%	13.3%	7.2%
11	37.6%	39.0%	14.0%	9.4%
12	38.8%	38.3%	14.1%	8.8%

Nonsport Activity Participation and Reported Substance Use by Grade Level

Crosstabulations of students' self-reported use of substances and extent of participation in school sponsored and/or community sponsored nonsport activity by student grade level are shown in tables 46 through 66.

Table 46

Sixth Grade Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	755	718	84	46	53	1656
	%	45.6	43.4	5.1	2.8	3.2	100.0
1-5	Count	770	799	84	26	22	1701
	%	45.3	47.0	4.9	1.5	1.3	100.0
6-10	Count	207	201	29	11	7	455
	%	45.5	44.2	6.4	2.4	1.5	100.0
11+	Count	92	102	15	4	14	227
	%	40.5	44.9	6.6	1.8	6.2	100.0
Total	Count	1824	1820	212	87	96	4039
	%	45.2	45.1	5.2	2.2	2.4	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 4039) = 40.580, p = .000$

Table 47

Seventh Grade Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	529	763	162	48	46	1548
	%	34.2	49.3	10.5	3.1	3.0	100.0
1-5	Count	517	739	145	33	30	1464
	%	35.3	50.5	9.9	2.3	2.0	100.0
6-10	Count	152	215	44	25	12	448
	%	33.9	48.0	9.8	5.6	2.7	100.0
11+	Count	76	102	26	23	21	248
	%	30.6	41.1	10.5	9.3	8.5	100.0
Total	Count	1274	1819	377	129	109	3708
	%	34.4	49.1	10.2	3.5	2.9	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 3708) = 72.054, p = .000$

Table 48

Eighth Grade Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	345	598	196	79	53	1271
	%	27.1	47.0	15.4	6.2	4.2	100.0
1-5	Count	349	626	204	56	29	1264
	%	27.6	49.5	16.1	4.4	2.3	100.0
6-10	Count	104	203	78	16	10	411
	%	25.3	49.4	19.0	3.9	2.4	100.0
11+	Count	49	100	40	27	17	233
	%	21.0	42.9	17.2	11.6	7.3	100.0
Total	Count	847	1527	518	178	109	3179
	%	26.6	48.0	16.3	5.6	3.4	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 3179) = 47.545, p = .000$

Table 49

Ninth Grade Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	432	821	368	132	56	1809
	%	23.9	45.4	20.3	7.3	3.1	100.0
1-5	Count	381	868	279	99	33	1660
	%	23.0	52.3	16.8	6.0	2.0	100.0
6-10	Count	137	246	104	42	26	555
	%	24.7	44.3	18.7	7.6	4.7	100.0
11+	Count	74	125	59	29	29	316
	%	23.4	39.6	18.7	9.2	9.2	100.0
Total	Count	1024	2060	810	302	144	4340
	%	23.6	47.5	18.7	7.0	3.3	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 4340) = 71.672, p = .000$

Table 50

Tenth Grade Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	273	643	285	151	52	1404
	%	19.4	45.8	20.3	10.8	3.7	100.0
1-5	Count	296	673	310	113	32	1424
	%	20.8	47.3	21.8	7.9	2.2	100.0
6-10	Count	122	182	117	39	15	475
	%	25.7	38.3	24.6	8.2	3.2	100.0
11+	Count	47	115	44	29	22	257
	%	18.3	44.7	17.1	11.3	8.6	100.0
Total	Count	738	1613	756	332	121	3560
	%	20.7	45.3	21.2	9.3	3.4	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 3560) = 53.184, p = .000$

Table 51

Eleventh Grade Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	205	429	268	135	34	1071
	%	19.1	40.1	25.0	12.6	3.2	100.0
1-5	Count	203	504	285	96	19	1107
	%	18.3	45.5	25.7	8.7	1.7	100.0
6-10	Count	75	179	94	33	13	394
	%	19.0	45.4	23.9	8.4	3.3	100.0
11+	Count	61	112	50	29	14	266
	%	22.9	42.1	18.8	10.9	5.3	100.0
Total	Count	544	1224	697	293	80	2838
	%	19.2	43.1	24.6	10.3	2.8	100.0

Note. % = percentage within nonsport activity participation.

$\chi^2(12, N = 2838) = 32.217, p = .001$

Table 52

Twelfth Grade Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	145	303	252	150	49	899
	%	16.1	33.7	28.0	16.7	5.5	100.0
1-5	Count	139	315	257	156	22	889
	%	15.6	35.4	28.9	17.5	2.5	100.0
6-10	Count	66	124	87	39	11	327
	%	20.2	37.9	26.6	11.9	3.4	100.0
11+	Count	38	80	48	24	15	205
	%	18.5	39.0	23.4	11.7	7.3	100.0
Total	Count	388	822	644	369	97	2320
	%	16.7	35.4	27.8	15.9	4.2	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 2320) = 30.015, p = .003$

Table 53

Sixth Grade Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1238	277	49	33	61	1658
	%	74.7	16.7	3.0	2.0	3.7	100.0
1-5	Count	1344	277	39	18	24	1702
	%	79.0	16.3	2.3	1.1	1.4	100.0
6-10	Count	350	77	12	11	6	456
	%	76.8	16.9	2.6	2.4	1.3	100.0
11+	Count	164	36	5	6	15	226
	%	72.6	15.9	2.2	2.7	6.6	100.0
Total	Count	3096	667	105	68	106	4042
	%	76.6	16.5	2.6	1.7	2.6	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 4042) = 45.332, p = .000$

Table 54

Seventh Grade Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	991	364	80	46	69	1550
	%	63.9	23.5	5.2	3.0	4.5	100.0
1-5	Count	996	336	76	23	35	1466
	%	67.9	22.9	5.2	1.6	2.4	100.0
6-10	Count	290	100	20	20	20	450
	%	64.4	22.2	4.4	4.4	4.4	100.0
11+	Count	139	63	15	10	24	251
	%	55.4	25.1	6.0	4.0	9.6	100.0
Total	Count	2416	863	191	99	148	3717
	%	65.0	23.2	5.1	2.7	4.0	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 3717) = 51.490, p = .000$

Table 55

Eighth Grade Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	714	320	80	52	103	1269
	%	56.3	25.2	6.3	4.1	8.1	100.0
1-5	Count	754	353	81	31	44	1263
	%	59.7	27.9	6.4	2.5	3.5	100.0
6-10	Count	221	104	52	20	18	415
	%	53.3	25.1	12.5	4.8	4.3	100.0
11+	Count	114	56	25	15	21	231
	%	49.4	24.2	10.8	6.5	9.1	100.0
Total	Count	1803	833	238	118	186	3178
	%	56.7	26.2	7.5	3.7	5.9	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 3178) = 70.500, p = .000$

Table 56

Ninth Grade Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	922	516	144	65	170	1817
	%	50.7	28.4	7.9	3.6	9.4	100.0
1-5	Count	950	480	118	42	73	1663
	%	57.1	28.9	7.1	2.5	4.4	100.0
6-10	Count	305	149	42	22	37	555
	%	55.0	26.8	7.6	4.0	6.7	100.0
11+	Count	154	88	23	19	33	317
	%	48.6	27.8	7.3	6.0	10.4	100.0
Total	Count	2331	1233	327	148	313	4352
	%	53.6	28.3	7.5	3.4	7.2	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 4352) = 55.237, p = .000$

Table 57

Tenth Grade Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	662	417	118	59	148	1404
	%	47.2	29.7	8.4	4.2	10.5	100.0
1-5	Count	758	427	124	36	82	1427
	%	53.1	29.9	8.7	2.5	5.7	100.0
6-10	Count	261	112	41	20	39	473
	%	55.2	23.7	8.7	4.2	8.2	100.0
11+	Count	127	71	24	9	26	257
	%	49.4	27.6	9.3	3.5	10.1	100.0
Total	Count	1808	1027	307	124	295	3561
	%	50.8	28.8	8.6	3.5	8.3	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 3561) = 40.147, p = .000$

Table 58

Eleventh Grade Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	479	302	95	54	143	1073
	%	44.6	28.1	8.9	5.0	13.3	100.0
1-5	Count	585	312	96	46	69	1108
	%	52.8	28.2	8.7	4.2	6.2	100.0
6-10	Count	213	118	35	11	20	397
	%	53.7	29.7	8.8	2.8	5.0	100.0
11+	Count	141	67	19	13	28	268
	%	52.6	25.0	7.1	4.9	10.4	100.0
Total	Count	1418	799	245	124	260	2846
	%	49.8	28.1	8.6	4.4	9.1	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 2846) = 53.814, p = .000$

Table 59

Twelfth Grade Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	375	246	77	49	152	899
	%	41.7	27.4	8.6	5.5	16.9	100.0
1-5	Count	420	269	99	38	66	892
	%	47.1	30.2	11.1	4.3	7.4	100.0
6-10	Count	168	84	36	9	31	328
	%	51.2	25.6	11.0	2.7	9.5	100.0
11+	Count	95	58	17	7	29	206
	%	46.1	28.2	8.3	3.4	14.1	100.0
Total	Count	1058	657	229	103	278	2325
	%	45.5	28.3	9.8	4.4	12.0	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12; N = 2325) = 52.977, p = .000$

Table 60

Sixth Grade Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1428	107	42	29	54	1660
	%	86.0	6.4	2.5	1.7	3.3	100.0
1-5	Count	1506	124	28	25	18	1701
	%	88.5	7.3	1.6	1.5	1.1	100.0
6-10	Count	392	39	6	6	10	453
	%	86.5	8.6	1.3	1.3	2.2	100.0
11+	Count	186	16	6	5	12	225
	%	82.7	7.1	2.7	2.2	5.3	100.0
Total	Count	3512	286	82	65	94	4039
	%	87.0	7.1	2.0	1.6	2.3	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 4039) = 36.328, p = .000$

Table 61

Seventh Grade Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1211	174	63	40	62	1550
	%	78.1	11.2	4.1	2.6	4.0	100.0
1-5	Count	1175	170	61	31	29	1466
	%	80.2	11.6	4.2	2.1	2.0	100.0
6-10	Count	333	63	21	15	17	449
	%	74.2	14.0	4.7	3.3	3.8	100.0
11+	Count	163	35	18	14	20	250
	%	65.2	14.0	7.2	5.6	8.0	100.0
Total	Count	2882	442	163	100	128	3715
	%	77.6	11.9	4.4	2.7	3.4	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 3715) = 51.592, p = .000$

Table 62

Eighth Grade Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	812	201	96	66	95	1270
	%	63.9	15.8	7.6	5.2	7.5	100.0
1-5	Count	897	207	76	35	50	1265
	%	70.9	16.4	6.0	2.8	4.0	100.0
6-10	Count	273	73	35	15	18	414
	%	65.9	17.6	8.5	3.6	4.3	100.0
11+	Count	143	29	16	7	38	233
	%	61.4	12.4	6.9	3.0	16.3	100.0
Total	Count	2125	510	223	123	201	3182
	%	66.8	16.0	7.0	3.9	6.3	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 3182) = 75.648, p = .000$

Table 63

Ninth Grade Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1112	313	135	94	163	1817
	%	61.2	17.2	7.4	5.2	9.0	100.0
1-5	Count	1135	286	113	46	82	1662
	%	68.3	17.2	6.8	2.8	4.9	100.0
6-10	Count	354	87	41	35	39	556
	%	63.7	15.6	7.4	6.3	7.0	100.0
11+	Count	180	56	20	18	43	317
	%	56.8	17.7	6.3	5.7	13.6	100.0
Total	Count	2781	742	309	193	327	4352
	%	63.9	17.0	7.1	4.4	7.5	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 4352) = 64.786, p = .000$

Table 64

Tenth Grade Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	757	297	136	86	130	1406
	%	53.8	21.1	9.7	6.1	9.2	100.0
1-5	Count	884	270	149	68	54	1425
	%	62.0	18.9	10.5	4.8	3.8	100.0
6-10	Count	281	86	47	31	29	474
	%	59.3	18.1	9.9	6.5	6.1	100.0
11+	Count	146	47	24	12	30	259
	%	56.4	18.1	9.3	4.6	11.6	100.0
Total	Count	2068	700	356	197	243	3564
	%	58.0	19.6	10.0	5.5	6.8	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 3564) = 55.693, p = .000$

Table 65

Eleventh Grade Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	556	221	112	65	119	1073
	%	51.8	20.6	10.4	6.1	11.1	100.0
1-5	Count	661	236	107	53	51	1108
	%	59.7	21.3	9.7	4.8	4.6	100.0
6-10	Count	248	77	29	25	19	398
	%	62.3	19.3	7.3	6.3	4.8	100.0
11+	Count	160	45	20	14	29	268
	%	59.7	16.8	7.5	5.2	10.8	100.0
Total	Count	1625	579	268	157	218	2847
	%	57.1	20.3	9.4	5.5	7.7	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 2847) = 55.333, p = .000$

Table 66

Twelfth Grade Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	439	198	96	54	114	901
	%	48.7	22.0	10.7	6.0	12.7	100.0
1-5	Count	487	199	98	53	56	893
	%	54.5	22.3	11.0	5.9	6.3	100.0
6-10	Count	195	67	28	17	20	327
	%	59.6	20.5	8.6	5.2	6.1	100.0
11+	Count	114	38	15	13	25	205
	%	55.6	18.5	7.3	6.3	12.2	100.0
Total	Count	1235	502	237	137	215	2326
	%	53.1	21.6	10.2	5.9	9.2	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 2326) = 36.652, p = .000$

*Nonsport Activity Participation and Reported Substance Use
by Gender*

Crosstabulations of students' self-reported use of substances and extent of participation in school sponsored and/or community sponsored nonsport activity by student gender are illustrated in Tables 67 through 72.

Table 67

Male Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1488	2113	805	426	242	5074
	%	29.3	41.6	15.9	8.4	4.8	100.0
1-5	Count	1225	1955	651	292	135	4258
	%	28.8	45.9	15.3	6.9	3.2	100.0
6-10	Count	448	615	269	106	69	1507
	%	29.7	40.8	17.9	7.0	4.6	100.0
11+	Count	238	397	135	97	92	959
	%	24.8	41.4	14.1	10.1	9.6	100.0
Total	Count	3399	5080	1860	921	538	11798
	%	28.8	43.1	15.8	7.8	4.6	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 11798) = 112.216, p = .000$

Table 68

Female Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1205	2171	808	323	118	4625
	%	26.1	46.9	17.5	7.0	2.6	100.0
1-5	Count	1437	2581	919	285	56	5278
	%	27.2	48.9	17.4	5.4	1.1	100.0
6-10	Count	419	736	282	97	30	1564
	%	26.8	47.1	18.0	6.2	1.9	100.0
11+	Count	206	342	150	70	51	819
	%	25.2	41.8	18.3	8.5	6.2	100.0
Total	Count	3267	5830	2159	775	255	12286
	%	26.6	47.5	17.6	6.3	2.1	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 12286) = 126.952, p = .000$

Table 69

Male Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2788	1255	355	213	473	5084
	%	54.8	24.7	7.0	4.2	9.3	100.0
1-5	Count	2492	1137	305	119	206	4259
	%	58.5	26.7	7.2	2.8	4.8	100.0
6-10	Count	858	353	132	69	100	1512
	%	56.7	23.3	8.7	4.6	6.6	100.0
11+	Count	473	241	74	48	124	960
	%	49.3	25.1	7.7	5.0	12.9	100.0
Total	Count	6611	2986	866	449	903	11815
	%	56.0	25.3	7.3	3.8	7.6	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 11815) = 144.099, p = .000$

Table 70

Female Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2603	1195	293	147	388	4626
	%	56.3	25.8	6.3	3.2	8.4	100.0
1-5	Count	3320	1328	332	114	192	5286
	%	62.8	25.1	6.3	2.2	3.6	100.0
6-10	Count	952	390	105	47	75	1569
	%	60.7	24.9	6.7	3.0	4.8	100.0
11+	Count	472	194	56	31	66	819
	%	57.6	23.7	6.8	3.8	8.1	100.0
Total	Count	7347	3107	786	339	721	12300
	%	59.7	25.3	6.4	2.8	5.9	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 12300) = 139.029, p = .000$

Table 71

Male Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	3181	777	360	242	528	5088
	%	62.5	15.3	7.1	4.8	10.4	100.0
1-5	Count	2837	712	288	181	245	4263
	%	66.5	16.7	6.8	4.2	5.7	100.0
6-10	Count	958	236	109	96	110	1509
	%	63.5	15.6	7.2	6.4	7.3	100.0
11+	Count	548	148	68	51	144	959
	%	57.1	15.4	7.1	5.3	15.0	100.0
Total	Count	7524	1873	825	570	1027	11819
	%	63.7	15.8	7.0	4.8	8.7	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 11819) = 134.343, p = .000$

Table 72

Female Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	3151	739	322	193	226	4631
	%	68.0	16.0	7.0	4.2	4.9	100.0
1-5	Count	3921	787	345	127	101	5281
	%	74.2	14.9	6.5	2.4	1.9	100.0
6-10	Count	1120	256	96	50	47	1569
	%	71.4	16.3	6.1	3.2	3.0	100.0
11+	Count	550	120	55	31	66	822
	%	66.9	14.6	6.7	3.8	8.0	100.0
Total	Count	8742	1902	818	401	440	12303
	%	71.1	15.5	6.6	3.3	3.6	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 12303) = 154.044, p = .000$

*Nonsport Activity Participation and Reported Substance Use
by Race/Ethnicity*

Crosstabulations of students' self-reported use of substances and extent of participation in school sponsored and/or community sponsored nonsport activity by student ethnicity are illustrated in Tables 73 through 78.

Table 73

White Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1112	1902	976	486	150	4626
	%	24.0	41.1	21.1	10.5	3.2	100.0
1-5	Count	1272	2259	1001	401	82	5015
	%	25.4	45.0	20.0	8.0	1.6	100.0
6-10	Count	425	648	309	118	40	1540
	%	27.6	42.1	20.1	7.7	2.6	100.0
11+	Count	217	329	156	95	44	841
	%	25.8	39.1	18.5	11.3	5.2	100.0
Total	Count	3026	5138	2442	1100	316	12022
	%	25.2	42.7	20.3	9.1	2.6	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 12022) = 92.747, p = .000$

Table 74

Black Student Reported Use of Alcohol and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1087	1575	343	121	110	3236
	%	33.6	48.7	10.6	3.7	3.4	100.0
1-5	Count	972	1494	302	83	67	2918
	%	33.3	51.2	10.3	2.8	2.3	100.0
6-10	Count	312	470	142	46	27	997
	%	31.3	47.1	14.2	4.6	2.7	100.0
11+	Count	160	282	64	32	29	567
	%	28.2	49.7	11.3	5.6	5.1	100.0
Total	Count	2531	3821	851	282	233	7718
	%	32.8	49.5	11.0	3.7	3.0	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 7718) = 48.706, p = .000$

Table 75

White Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2416	1136	348	176	556	4632
	%	52.2	24.5	7.5	3.8	12.0	100.0
1-5	Count	3047	1228	371	111	260	5017
	%	60.7	24.5	7.4	2.2	5.2	100.0
6-10	Count	929	347	110	46	110	1542
	%	60.2	22.5	7.1	3.0	7.1	100.0
11+	Count	458	215	57	30	84	844
	%	54.3	25.5	6.8	3.6	10.0	100.0
Total	Count	6850	2926	886	363	1010	12035
	%	56.9	24.3	7.4	3.0	8.4	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 12035) = 198.599, p = .000$

Table 76

Black Student Reported Use of Smoking Tobacco and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	1964	874	175	96	137	3246
	%	60.5	26.9	5.4	3.0	4.2	100.0
1-5	Count	1829	825	145	72	57	2928
	%	62.5	28.2	5.0	2.5	1.9	100.0
6-10	Count	595	263	73	38	34	1003
	%	59.3	26.2	7.3	3.8	3.4	100.0
11+	Count	322	148	38	25	35	568
	%	56.7	26.1	6.7	4.4	6.2	100.0
Total	Count	4710	2110	431	231	263	7745
	%	60.8	27.2	5.6	3.0	3.4	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 7745) = 59.912, p = .000$

Table 77

White Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2765	753	404	272	442	4636
	%	59.6	16.2	8.7	5.9	9.5	100.0
1-5	Count	3459	785	388	185	207	5024
	%	68.8	15.6	7.7	3.7	4.1	100.0
6-10	Count	1047	230	116	68	79	1540
	%	68.0	14.9	7.5	4.4	5.1	100.0
11+	Count	527	123	64	43	86	843
	%	62.5	14.6	7.6	5.1	10.2	100.0
Total	Count	7798	1891	972	568	814	12043
	%	64.8	15.7	8.1	4.7	6.8	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 12043) = 191.282, p = .000$

Table 78

Black Student Reported Use of Marijuana, Hashish and Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
None	Count	2356	488	163	87	157	3251
	%	72.5	15.0	5.0	2.7	4.8	100.0
1-5	Count	2203	453	131	66	72	2925
	%	75.3	15.5	4.5	2.3	2.5	100.0
6-10	Count	709	168	51	40	34	1002
	%	70.8	16.8	5.1	4.0	3.4	100.0
11+	Count	396	84	28	23	38	569
	%	69.6	14.8	4.9	4.0	6.7	100.0
Total	Count	5664	1193	373	216	301	7747
	%	73.1	15.4	4.8	2.8	3.9	100.0

Note. % = percentage within nonsport activity participation.

$X^2(12, N = 7747) = 52.969, p = .000$

Employment

Analysis first examined student participation in after school and/or weekend employment. Analyses were then conducted to assess both student participation in school sponsored and/or community sponsored sport and athletic activity together with employment and student participation in school sponsored and/or community sponsored nonsport activity together with employment. Assessment of any relationship between respondents' reported use of alcohol, cigarettes/cigars, and marijuana/hashish and extent of participation in sport and athletic activity together with employment was completed. As well, analyses were conducted to assess any relationship between respondents' reported use of alcohol, cigarettes/cigars, and marijuana/hashish and extent of participation in nonsport activity together with employment.

Employment by Grade Level

Crosstabulation of employment by respondent grade level is found in detail in Appendix H. Table 79 represents a summary of these findings, the percentage of participants employed within the respondent's grade.

Table 79

Employment by Grade Level

Grade	Employment			
	None	1-5 Hours	6-10 Hours	11+ Hours
6	85.3%	11.1%	1.7%	1.9%
7	83.5%	11.7%	2.9%	1.9%
8	80.7%	12.4%	4.8%	2.1%
9	80.4%	9.4%	6.5%	3.7%
10	66.5%	10.9%	12.9%	9.7%
11	47.8%	11.0%	22.2%	19.0%
12	34.1%	10.9%	25.4%	29.6%

As shown in Table 79, 85.3% of 6th graders, 83.5% of 7th graders, 80.7% of 8th graders, and 80.4% of 9th graders are not employed. Percentage of employed students is greatest in the 10th, 11th, and 12th grades. Analyses to investigate the research questions pertaining to employment include data from 10th, 11th, and 12th grade respondents.

*Employment Together With Participation in School Sponsored
and/or Community Sponsored Sport/Athletic Activity*

Crosstabulation of respondent employment and participation in school sponsored and/or community sponsored sport and athletic activity is found in detail in Appendix I. Table 80 represents a summary of these findings. The percentage indicated is within employment.

Table 80

Employment and Sport/Athletic Participation

Employment	Sport/Athletic Participation			
	None	1-5 Hours	6-10 Hours	11+ Hours
None	49.8%	19.3%	15.1%	15.8%
5-10 Hours	41.4%	26.0%	18.4%	14.2%
11-20 Hours	48.4%	18.8%	19.7%	13.0%
>20 Hours	56.4%	16.9%	13.1%	13.6%

*Employment Together With Participation in School Sponsored
and/or Community Sponsored Nonsport Activity*

Crosstabulation of respondent employment and participation in school sponsored and/or community sponsored nonsport activity is found in detail in Appendix J. Table 81 represents a summary of these findings. The percentage indicated is within employment.

Table 81

Employment and Nonsport Activity Participation

<i>Employment</i>	<i>Nonsport Activity Participation</i>			
	<i>None</i>	<i>1-5 Hours</i>	<i>6-10 Hours</i>	<i>11+ Hours</i>
<i>None</i>	39.7%	39.8%	13.5%	7.1%
<i>5-10 Hours</i>	30.5%	44.1%	16.1%	9.3%
<i>11-20 Hours</i>	34.3%	42.2%	14.5%	9.0%
<i>>20 Hours</i>	45.7%	30.6%	12.0%	11.6%

Employment Together With Sport/Athletic Participation and Reported Substance Use

Crosstabulations of students' self-reported use of substances and extent of employment together with extent of participation in school sponsored and/or community sponsored sport/athletic activity are illustrated in Tables 82 through 90.

Table 82

Student Reported Use of Alcohol and Employment of 5-10 Hours Together With Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	56	105	59	24	7	251
	%	5.8	10.9	6.1	2.5	0.7	26.1
6-10	Count	27	65	45	30	9	176
	%	2.8	6.8	4.7	3.1	0.9	18.3
11+	Count	28	44	38	21	6	137
	%	2.9	4.6	4.0	2.2	0.6	14.2
Total	Count	210	389	220	111	32	962
	%	21.8	40.4	22.9	11.5	3.3	100.0

Note. % = percentage of total.

$X^2(12, N = 962) = 25.832, p = .011$

Table 83

Student Reported Use of Alcohol and Employment of 11-20 Hours Together With Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	43	140	88	41	7	319
	%	2.5	8.3	5.2	2.4	0.4	18.9
6-10	Count	42	102	116	53	18	331
	%	2.5	6.0	6.9	3.1	1.1	19.6
11+	Count	42	77	55	34	10	218
	%	2.5	4.6	3.3	2.0	0.6	12.9
Total	Count	245	643	499	245	57	1689
	%	14.5	38.1	29.5	14.5	3.4	100.0

Note. % = percentage of total.

$X^2(12, N = 1689) = 26.820, p = .008$

Table 84

Student Reported Use of Alcohol and Employment of Greater Than 20 Hours Together With Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	35	95	75	53	13	271
	%	2.2	5.9	4.7	3.3	0.8	16.9
6-10	Count	24	75	66	32	13	210
	%	1.5	4.7	4.1	2.0	0.8	13.1
11+	Count	26	71	51	29	37	214
	%	1.6	4.4	3.2	1.8	2.3	13.3
Total	Count	196	576	467	258	106	1603
	%	12.2	35.9	29.1	16.1	6.6	100.0

Note. % = percentage of total.

$X^2(12, N = 1603) = 50.163, p = .000$

Table 85

Student Reported Use of Smoking Tobacco and Employment of 5-10 Hours Together With Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	111	80	30	14	17	252
	%	11.5	8.3	3.1	1.4	1.8	26.0
6-10	Count	80	60	20	10	8	178
	%	8.3	6.2	2.1	1.0	0.8	18.4
11+	Count	74	42	13	2	7	138
	%	7.6	4.3	1.3	0.2	0.7	14.2
Total	Count	478	275	97	48	71	969
	%	49.3	28.4	10.0	5.0	7.3	100.0

Note. % = percentage of total.

$X^2(12, N = 969) = 22.920, p = .028$

Table 86

Student Reported Use of Smoking Tobacco and Employment of 11-20 Hours Together With Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	145	99	32	14	29	319
	%	8.6	5.8	1.9	0.8	1.7	18.8
6-10	Count	154	107	31	17	26	335
	%	9.1	6.3	1.8	1.0	1.5	19.8
11+	Count	116	52	23	17	12	220
	%	6.9	3.1	1.4	1.0	0.7	13.0
Total	Count	786	485	180	83	159	1693
	%	46.4	28.6	10.6	4.9	9.4	100.0

Note. % = percentage of total.

$X^2(12, N = 1693) = 19.529, p = .077$

Table 87

Student Reported Use of Smoking Tobacco and Employment of Greater Than 20 Hours Together With Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	104	83	27	16	43	273
	%	6.5	5.2	1.7	1.0	2.7	17.0
6-10	Count	85	61	30	9	24	209
	%	5.3	3.8	1.9	0.6	1.5	13.0
11+	Count	83	58	19	11	48	219
	%	5.2	3.6	1.2	0.7	3.0	13.6
Total	Count	595	460	159	85	309	1608
	%	37.0	28.6	9.9	5.3	19.2	100.0

Note. % = percentage of total.

$X^2(12, N = 1608) = 18.967, p = .089$

Table 88

Student Reported Use of Marijuana, Hashish and Employment of 5-10 Hours Together With Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	136	54	36	14	10	250
	%	14.1	5.6	3.7	1.5	1.0	25.9
6-10	Count	95	35	21	18	9	178
	%	9.8	3.6	2.2	1.9	0.9	18.4
11+	Count	82	24	14	7	10	137
	%	8.5	2.5	1.5	0.7	1.0	14.2
Total	Count	565	170	105	63	62	965
	%	58.5	17.6	10.9	6.5	6.4	100.0

Note. % = percentage of total.

$X^2(12, N = 965) = 22.784, p = .030$

Table 89

Student Reported Use of Marijuana, Hashish and Employment of 11-20 Hours Together With Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	172	60	48	17	23	320
	%	10.2	3.5	2.8	1.0	1.4	18.9
6-10	Count	160	78	42	28	26	334
	%	9.4	4.6	2.5	1.7	1.5	19.7
11+	Count	121	47	28	12	11	219
	%	7.1	2.8	1.7	0.7	0.6	12.9
Total	Count	877	358	211	102	146	1694
	%	51.8	21.1	12.5	6.0	8.6	100.0

Note. % = percentage of total.

$X^2(12, N = 1694) = 17.363, p = .136$

Table 90

Student Reported Use of Marijuana, Hashish and Employment of Greater Than 20 Hours Together With Sport/Athletic Participation

Hours per week sport/athletic participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	121	54	46	25	27	273
	%	7.5	3.4	2.9	1.6	1.7	17.0
6-10	Count	89	59	26	14	20	208
	%	5.5	3.7	1.6	0.9	1.2	13.0
11+	Count	84	47	20	15	51	217
	%	5.2	2.9	1.2	0.9	3.2	13.5
Total	Count	667	402	195	129	212	1605
	%	41.6	25.0	12.1	8.0	13.2	100.0

Note. % = percentage of total.

$X^2(12, N = 1605) = 37.202, p = .000$

*Employment Together With Nonsport Activity Participation
and Reported Substance Use*

Crosstabulations of students' self-reported use of substances and extent of employment together with extent of participation in school sponsored and/or community sponsored nonsport activity are illustrated in Tables 91 through 99.

Table 91

Student Reported Use of Alcohol and Employment of 5-10 Hours Together With Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	87	177	96	51	12	423
	%	9.1	18.5	10.0	5.3	1.3	44.1
6-10	Count	36	58	41	14	6	155
	%	3.8	6.0	4.3	1.5	0.6	16.2
11+	Count	25	32	16	12	3	88
	%	2.6	3.3	1.7	1.3	0.3	9.2
Total	Count	211	388	218	111	31	959
	%	22.0	40.5	22.7	11.6	3.2	100.0

Note. % = percentage of total.

$\chi^2(12, N = 959) = 6.643, p = .880$

Table 92

Student Reported Use of Alcohol and Employment of 11-20 Hours Together With Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	106	259	228	101	17	711
	%	6.3	15.4	13.5	6.0	1.0	42.2
6-10	Count	43	93	69	32	7	244
	%	2.6	5.5	4.1	1.9	0.4	14.5
11+	Count	25	72	34	15	7	153
	%	1.5	4.3	2.0	0.9	0.4	9.1
Total	Count	244	642	498	245	56	1685
	%	14.5	38.1	29.6	14.5	3.3	100.0

Note. % = percentage of total.

$\chi^2(12, N = 1685) = 21.892, p = .039$

Table 93

Student Reported Use of Alcohol and Employment of Greater Than 20 Hours Together With Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	61	195	139	76	19	490
	%	3.8	12.2	8.7	4.8	1.2	30.7
6-10	Count	31	65	61	23	10	190
	%	1.9	4.1	3.8	1.4	0.6	11.9
11+	Count	22	61	38	34	32	187
	%	1.4	3.8	2.4	2.1	2.0	11.7
Total	Count	196	573	465	259	105	1598
	%	12.3	35.9	29.1	16.2	6.6	100.0

Note. % = percentage of total.

$\chi^2(12, N = 1598) = 53.954, p = .000$

Table 94

Student Reported Use of Smoking Tobacco and Employment of 5-10 Hours Together With Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	214	128	33	19	31	425
	%	22.2	13.3	3.4	2.0	3.2	44.0
6-10	Count	78	42	16	10	10	156
	%	8.1	4.4	1.7	1.0	1.0	16.2
11+	Count	45	25	9	3	8	90
	%	4.7	2.6	0.9	0.3	0.8	9.3
Total	Count	476	274	97	47	71	965
	%	49.3	28.4	10.1	4.9	7.4	100.0

Note. % = percentage of total.

$$\chi^2(12, N = 965) = 8.272, p = .764$$

Table 95

Student Reported Use of Smoking Tobacco and Employment of 11-20 Hours Together With Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	338	221	78	28	48	713
	%	20.0	13.1	4.6	1.7	2.8	42.2
6-10	Count	129	57	26	12	21	245
	%	7.6	3.4	1.5	0.7	1.2	14.5
11+	Count	86	34	12	5	15	152
	%	5.1	2.0	0.7	0.3	0.9	9.0
Total	Count	784	485	179	83	158	1689
	%	46.4	28.7	10.6	4.9	9.4	100.0

Note. % = percentage of total.

$X^2(12, N = 1689) = 36.433, p = .000$

Table 96

Student Reported Use of Smoking Tobacco and Employment of Greater Than 20 Hours Together With Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	207	148	51	26	59	491
	%	12.9	9.2	3.2	1.6	3.7	30.7
6-10	Count	78	58	27	4	25	192
	%	4.9	3.6	1.7	0.2	1.6	12.0
11+	Count	62	44	18	9	54	187
	%	3.9	2.7	1.1	0.6	3.4	11.7
Total	Count	592	460	160	82	307	1601
	%	37.0	28.7	10.0	5.1	19.2	100.0

Note. % = percentage of total.

$\chi^2(12, N = 1601) = 50.389, p = .000$

Table 97

Student Reported Use of Marijuana, Hashish and Employment of 5-10 Hours Together With Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	250	73	46	31	23	423
	%	26.0	7.6	4.8	3.2	2.4	44.0
6-10	Count	91	31	11	12	11	156
	%	9.5	3.2	1.1	1.2	1.1	16.2
11+	Count	51	16	11	5	6	89
	%	5.3	1.7	1.1	0.5	0.6	9.3
Total	Count	565	170	103	62	62	962
	%	58.7	17.7	10.7	6.4	6.4	100.0

Note. % = percentage of total.

$X^2(12, N = 962) = 6.706, p = .876$

Table 98

Student Reported Use of Marijuana, Hashish and Employment of 11-20 Hours Together With Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	383	161	89	32	49	714
	%	22.7	9.5	5.3	1.9	2.9	42.3
6-10	Count	136	47	35	16	11	245
	%	8.1	2.8	2.1	0.9	0.7	14.5
11+	Count	89	24	13	8	19	153
	%	5.3	1.4	0.8	0.5	1.1	9.1
Total	Count	874	357	210	102	146	1689
	%	51.7	21.1	12.4	6.0	8.6	100.0

Note. % = percentage of total.

$\chi^2(12, N = 1689) = 34.503, p = .001$

Table 99

Student Reported Use of Marijuana, Hashish and Employment of Greater Than 20 Hours Together With Nonsport Activity Participation

Hours per week nonsport activity participation		Frequency of use					Total
		Never used	Tried once or twice	Used in past 30 days	Use almost every week	Use almost every day	
1-5	Count	225	121	63	41	40	490
	%	14.1	7.6	3.9	2.6	2.5	30.6
6-10	Count	100	41	16	20	14	191
	%	6.3	2.6	1.0	1.3	0.9	11.9
11+	Count	71	40	22	12	42	187
	%	4.4	2.5	1.4	0.8	2.6	11.7
Total	Count	665	402	192	128	212	1599
	%	41.6	25.1	12.0	8.0	13.3	100.0

Note. % = percentage of total.

$X^2(12, N = 1599) = 50.905, p = .000$

Chapter Four presents the analysis of data. Chapter Five concludes the study with findings, conclusions, and recommendations.

Chapter Five

Findings, Conclusions, and Recommendations

The purpose of this research was to examine the relationship, if any, between students' reported use of substances and extent of participation in school sponsored and/or community sponsored sport and athletic activity and nonsport activity. The study also looked at reported substance use and combined involvement in employment and extracurricular activity. Student grade level, student gender, and student race/ethnicity were examined as moderator variables.

The study utilized data collected for an annual survey of knowledge, attitudes, and behaviors for substance use and violence in the Duval County, Florida, Public Schools. The instrument used was the 2001-2002 Alcohol, Tobacco, Other Drugs, and Violence Survey: Knowledge, Attitudes, and Behaviors (Wilburn & Wilburn, 2002). The sample consisted of males and females who attended grade 6 through 12 in Duval County, Florida, public schools. The total number of completed valid surveys was 24,699, or 51.9% of the available population of 47,586.

SPSS 10.0 was used for crosstabulation and chi-square tests. Analyses were conducted to test the variables stated in the research questions and their interactions for statistical significance. The alpha level was set at .05.

Discussion of Findings

The purpose of this section is to discuss the findings of the study as they relate to the research questions.

Reported Substance Use

Frequency distributions of the students' reported use of each substance indicated great differences in percentage of any reported use. The frequency distributions of drugs showing a total incidence of less than 25% use among students are found in Appendix E and were not further assessed. The frequency distributions of substances that showed an incidence of use of greater than 25% included alcohol, cigarettes, cigars, marijuana, hashish and were further assessed for association with the study variables. Of the 24,699 total participants, 15,519 reported some level of use of alcohol, 10,279 reported some level of use of smoking tobacco, and 7,969 reported some level of use of marijuana, hashish.

Sport/Athletic Participation

Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student grade level?

Alcohol use.

Based on the chi-square test, there was a significant association between reported use of alcohol and sport participation for 6th grade respondents ($p = .000$), 7th grade respondents ($p = .000$), 8th grade respondents ($p = .028$), 9th grade respondents ($p = .003$), and 10th grade respondents ($p = .000$). The association between reported use of alcohol and sport participation was not significant for 11th grade respondents ($p = .381$) and 12th grade respondents ($p = .113$).

Crosstabulation showed the percentage of respondents who reported never having used alcohol in life decreased as grade level increased; after the sixth grade, a greater percentage of respondents reported experimentation (tried once or twice but do not use regularly) than respondents who reported never having used alcohol in life. A higher percentage of respondents who participated in sport/athletic activity 11+ hours per week reported use of alcohol almost every day than those involved in 1-5 hours

of participation by grade level. As well, a greater percentage of participants in 11+ hours of sport/athletic activity reported use of alcohol almost every day than percentage of nonparticipants. This study corroborates the findings by Lane et al. (2001), Rainey et al. (1996), and Winnail et al. (1997) that athletic participation is associated with an increase in alcohol use. This contradicts the findings by Thorlindsson et al. (1990) and Stuck (1990) that adolescents who participated in sports were less likely to drink than their nonathletic counterparts. While a greater percentage of respondents who participated in 11+ hours of sport/athletic activity reported almost daily use of alcohol than those who participated 1-5 hours at all grade levels, the most dramatic difference was with sixth grade respondents; a seven-fold increase in percentage of respondents was noted. Table 100 summarizes these findings.

Table 100

Sport/Athletic Participation and Percentage of Reported Almost Daily Alcohol Use by Grade

Grade	Sport/Athletic participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
6	1.0%	7.1%	7.10x
7	2.2%	6.2%	2.82x
8	2.7%	4.8%	1.78x
9	2.8%	6.0%	2.14x
10	2.9%	4.6%	1.59x
11	2.3%	3.9%	1.70x
12	2.0%	5.6%	2.80x

Smoking tobacco use.

Based on the chi-square test, there was a significant association between reported use of smoking tobacco and sport participation for 6th grade respondents ($p = .000$), 7th grade respondents ($p = .000$), 8th grade respondents ($p = .002$), 9th grade respondents ($p = .002$), 10th grade respondents ($p = .012$), 11th grade respondents ($p = .016$), and 12th grade respondents ($p = .002$).

Based on crosstabulation, the percentage of respondents who reported never having used smoking tobacco was consistently greater than the percentage of respondents in any other category of use. This held for the

sport participants as well as those who reported no sport/athletic participation. A greater percentage of 6th and 7th grade respondents who participated in 11+ hours of sport/athletic activity reported use of smoking tobacco almost every day than did nonparticipants in sport/athletic activity. However, this association was reversed among the 8-12th grade respondents; a greater percentage of those who did not participate in sport/athletic activity reported use of smoking tobacco almost every day than did respondents who participated in 1-5 hours, 6-10 hours, and 11+ hours of sport/athletic activity. This supports the findings by Baumert et al. (1998), Pate, Heath et al. (1996), Rainey et al. (1996), Winnail, Valois, Dowda, et al. (1997), and the Women's Sports Foundation (n.d.) that nonathletes were more likely to smoke cigarettes than their athletic counterparts. A higher percentage of 6th, 7th, 8th, 9th, 10th, and 12th grade respondents involved in 11+ hours of sport/athletic participation reported use of smoking tobacco almost every day than those involved in 1-5 hours of participation. Among the 6th grade respondents who reported almost daily use of smoking tobacco, the percentage that participated in 11+ hours of sport/athletic activity was 3.87 times over the percentage that

participated 1-5 hours. Also noted was the decrease in percentage of 11th grade participants who reported use of smoking tobacco almost every day with an increase in sport/athletic participation. Table 101 summarizes these findings by grade level.

Table 101

Sport/Athletic Participation and Percentage of Reported Almost Daily Smoking Tobacco Use by Grade

Grade	Sport/Athletic participation		Difference in % of respondents	
	1-5 Hours	11+ Hours	Greater	Lesser
6	1.5%	5.8%	3.87x	
7	3.1%	6.9%	2.23x	
8	4.9%	5.3%	1.08x	
9	4.4%	6.8%	1.55x	
10	6.2%	6.5%	1.05x	
11	9.9%	3.9%		.39x
12	9.8%	9.9%	1.01x	

Marijuana, hashish use.

Based on the chi-square test, there was a significant association between reported use of marijuana, hashish and sport participation for 6th grade respondents ($p = .000$), 7th grade respondents ($p = .000$), 8th grade respondents ($p =$

.031), 9th grade respondents ($p = .013$), and 10th grade respondents ($p = .022$). Based on the chi-square test, the association between reported use of marijuana, hashish and sport participation was not significant for 11th grade respondents ($p = .069$) and 12th grade respondents ($p = .341$).

As with the reported use of smoking tobacco, crosstabulation showed the percentage of respondents who reported never having used marijuana, hashish was consistently greater than the percentage of respondents in any other category of use. This included the sport participants as well as those who reported no participation in sport/athletic activity. Percentage of respondents who reported use of marijuana varied with extent of sport participation; a higher percentage of nonparticipants did not consistently report greater use of marijuana, hashish than athletic participants. The highest percentage of respondents who reported use of marijuana, hashish almost every day included nonparticipants or those who participated in sport/athletic activity 11+ hours. Contradictory to this study's findings, Lane et al. (2001), Pate, Heath, et al. (1996), and Winnail, Valois, Dowda, et al. (1997) reported that athletic participants reported

less marijuana use than nonparticipants. A greater percentage of respondents who participated in 11+ hours of sport/athletic activity reported use of marijuana, hashish almost every day than those involved in 1-5 hours of participation, with the exception of 10th grade respondents. The greatest difference in percentage of respondents who reported use of marijuana, hashish almost every day was with 6th grade respondents; the percentage that participated in 11+ hours of sport/athletic activity was 6.0 times over the percentage that participated 1-5 hours. Table 102 summarizes these findings by grade level.

Table 102

Sport/Athletic Participation and Percentage of Reported Almost Daily Marijuana, Hashish Use by Grade

Grade	Sport/Athletic participation		Difference in % of respondents	
	1-5 Hours	11+ Hours	Greater	Lesser
6	1.0%	6.0%	6.00x	
7	3.7%	5.5%	1.49x	
8	5.3%	8.0%	1.51x	
9	5.7%	9.4%	1.65x	
10	6.3%	5.3%		.84x
11	5.6%	8.0%	1.43x	
12	7.5%	10.6%	1.41x	

Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored sport and athletic activity by student gender?

Alcohol use.

Based on the chi-square test, there was a significant association between reported use of alcohol and sport participation for male respondents ($p = .000$) and female respondents ($p = .000$).

Crosstabulation showed the percentage of the respondents who reported experimentation for both males and females was greater than those who reported never having used alcohol in life. A greater percentage of males, as a group, reported frequent use of alcohol (use almost every week and use almost every day) than did females. Analysis also showed a greater percentage of respondents who participated in 11+ hours of sport/athletic activity reported frequent use of alcohol than did the percentage of nonparticipants. Use of alcohol almost every day was reported by a greater percentage of males and females who participated in 11+ hours of sport/athletic activity than those who participated in 1-5 hours of sport/athletic activity. The percentage of both males and females who participated in 11+ hours of sport/athletic activity and

reported use of alcohol almost every day was more than double the percentage who participated 1-5 hours. This reinforces the finding by Pate, Heath et al. (1996) that high physical activity was associated with increased alcohol consumption among female students, however contradicts their finding that high physical activity was unrelated to drinking practices among males. Table 103 summarizes these findings.

Table 103

Sport/Athletic Participation and Percentage of Reported Almost Daily Alcohol Use by Gender

Gender	Sport/Athletic participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
Male	2.7%	6.6%	2.44x
Female	1.8%	4.8%	2.67x

Smoking tobacco use.

Based on the chi-square test, there was a significant association between reported use of smoking tobacco and sport participation for male respondents ($p = .000$) and female respondents ($p = .000$).

Crosstabulation showed a greater percentage of

respondents reported never having used smoking tobacco as compared to percentage of respondents in any other category of use. A greater percentage of males, as a group, reported frequent use of smoking tobacco than did percentage of females. As with alcohol, use of smoking tobacco almost every day was reported by a greater percentage of males and females who participated in 11+ hours of sport/athletic activity than those who participated in 1-5 hours of sport/athletic activity. Table 104 summarizes these findings. The highest percentage of respondents who reported the use of smoking tobacco almost every day was those who did not participate in sport/athletic activity.

Table 104

Sport/Athletic Participation and Percentage of Reported Almost Daily Smoking Tobacco Use by Gender

Gender	Sport/Athletic participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
Male	5.2%	7.3%	1.40x
Female	4.2%	6.1%	1.45x

Marijuana, hashish use.

Based on the chi-square test, there was a significant

association between reported use of marijuana, hashish and sport participation for male respondents ($p = .000$) and female respondents ($p = .000$).

Based on crosstabulation, a greater percentage of respondents reported never having used marijuana, hashish as compared to percentage of responses in any other category of use. A greater percentage of males, as a group, reported frequent use of marijuana, hashish (use almost every week and use almost every day) than did females, as a group. A greater percentage of males and females who participated in 11+ hours of sport/athletic activity reported use of marijuana, hashish almost every day than the percentage that participated in 1-5 hours of sport/athletic activity. Table 105 summarizes these findings.

Table 105

Sport/Athletic Participation and Percentage of Reported Almost Daily Marijuana, Hashish Use by Gender

Gender	Sport/Athletic participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
Male	6.4%	9.2%	1.44x
Female	2.5%	5.6%	2.24x

Is there a statistically significant relationship between secondary school students' self-substance use and extent of participation in school sponsored and/or community sponsored sports and athletics by student race/ethnicity?

Alcohol use.

Based on the chi-square test, there was a significant association between reported use of alcohol and sport participation for White respondents ($p = .000$) and Black respondents ($p = .000$).

Crosstabulation showed a greater percentage of White and Black participants reported experimentation with alcohol than the percentage of those that reported never having used alcohol in life. A greater percentage of Black respondents, as a group, reported use of alcohol almost every day than percentage of White respondents. Analysis also showed a higher percentage of participants in 11+ hours of sport/athletic activity reported use of alcohol almost every day than the percentage of nonparticipants. A greater percentage of White and Black respondents who participated in 11+ hours of sport/athletic activity reported use of alcohol almost every day than the percentage that participated in 1-5 hours of sport/athletic activity. Table 106 summarizes these findings.

Table 106

Sport/Athletic Participation and Percentage of Reported Almost Daily Alcohol Use by Race/Ethnicity

Race/ Ethnicity	Sport/Athletic participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
White	1.7%	3.3%	1.94x
Black	2.4%	5.4%	2.25x

Smoking tobacco use.

Based on the chi-square test, there was a significant association between reported use of smoking tobacco and sport participation for White respondents ($p = .000$) and Black respondents ($p = .000$).

Based on crosstabulation, a greater percentage of respondents reported never having used smoking tobacco as compared to responses in any other category of use. The greatest percentage of respondents who reported use of smoking tobacco almost every day were White nonathletes. With participation in 11+ hours of sport/athletic activity, an equal percentage of White and Black respondents reported use of smoking tobacco. When looking at hours of participation and use, analysis showed that a greater percentage of Black respondents reported use of smoking

tobacco almost every day when participating in 11+ hours of sport/athletic activity while a greater percentage of White respondents reported use of smoking tobacco almost every day when participating in 1-5 hours of sport/athletic activity. Table 107 summarizes these findings.

Table 107

Sport/Athletic Participation and Percentage of Reported Almost Daily Smoking Tobacco Use by Race/Ethnicity

Race/ Ethnicity	Sport/Athletic participation		Difference in % of respondents	
	1-5 Hours	11+ Hours	Greater	Lesser
White	6.6%	5.3%		.80x
Black	2.5%	5.3%	2.12x	

Marijuana, hashish use.

Based on the chi-square test, there was a significant association between reported use of marijuana, hashish and sport participation for White respondents ($p = .000$) and Black respondents ($p = .000$).

Crosstabulation showed a greater percentage of respondents reported never having used marijuana, hashish as compared to responses in any other category of use. The greatest percentage of White respondents who reported use of marijuana, hashish almost every day were nonathletes.

Interestingly, the greatest percentage of Black respondents who reported use of marijuana, hashish almost every day were those who participated in 11+ hours of sport/athletic activity. An equal percentage of White and Black respondents reported use of marijuana, hashish with 11+ hours of sport/athletic participation. Analysis showed that a greater percentage of White and Black respondents who participated in 11+ hours of sport/athletic activity reported use of marijuana, hashish almost every day than the percentage that participated in 1-5 hours of sport/athletic activity. Table 108 summarizes these findings.

Table 108

Sport/Athletic Participation and Percentage of Reported Almost Daily Marijuana, Hashish Use by Race/Ethnicity

Race/ Ethnicity	Sport/Athletic participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
White	5.5%	5.9%	1.07x
Black	2.7%	5.9%	2.19x

Nonsport Activity Participation

Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student grade level?

Alcohol use.

Based on the chi-square test, there was a significant association between reported use of alcohol and nonsport participation for 6th grade respondents ($p = .000$), 7th grade respondents ($p = .000$), 8th grade respondents ($p = .000$), 9th grade respondents ($p = .000$), 10th grade respondents ($p = .000$), 11th grade respondents ($p = .001$), and 12th grade respondents ($p = .003$).

Crosstabulation consistently showed a greater percentage of participants in 1-5 hours of nonsport activity reported experimentation with alcohol than the percentage of respondents who did not participate in nonsport activity. Use of alcohol almost every day was reported by a greater percentage of respondents who participated in nonsport activity 11+ hours than the percentage of respondents in any other category of participation for all grade levels. As compared to the percentage of respondents in 1-5 hours of nonsport activity participation, the percentage of respondents who reported

almost daily use of alcohol were, at minimum, double when participating in 11+ hours of nonsport activity; there was a four-fold difference between percentage of sixth, seventh, and ninth grade respondents who participated in 11+ hours of nonsport activity and the percentage that participated 1-5 hours. Table 109 summarizes these findings.

Table 109

Nonsport Activity Participation and Percentage of Reported Almost Daily Alcohol Use by Grade

Grade	Nonsport activity participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
6	1.3%	6.2%	4.77x
7	2.0%	8.5%	4.25x
8	2.3%	7.3%	3.17x
9	2.0%	9.2%	4.60x
10	2.2%	8.6%	3.91x
11	1.7%	5.3%	3.12x
12	2.5%	7.3%	2.92x

Smoking tobacco use.

Based on the chi-square test, there was a significant association between reported use of smoking tobacco and

nonsport participation for 6th grade respondents ($p = .000$), 7th grade respondents ($p = .000$), 8th grade respondents ($p = .000$), 9th grade respondents ($p = .000$), 10th grade respondents ($p = .000$), 11th grade respondents ($p = .000$), and 12th grade respondents ($p = .000$).

Crosstabulation showed the percentage of respondents who reported never having used smoking tobacco was consistently greater than the percentage of respondents in any other category of use. This was noted with those who reported no participation as well as those who reported participation in nonsport activity. A greater percentage of respondents who participated in 11+ hours of nonsport activity reported use of smoking tobacco almost every day than the percentage involved in 1-5 hours of participation. This was reported at all grade levels, with the greatest difference in percentage of respondents noted among sixth graders; the percentage of sixth grade respondents who participated in 11+ hours of nonsport activity was 4.71 times over the percentage that participated 1-5 hours. Table 110 summarizes these findings by grade level.

Table 110

Nonsport Activity Participation and Percentage of Reported Almost Daily Smoking Tobacco Use by Grade

Grade	Nonsport activity participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
6	1.4%	6.6%	4.71x
7	2.4%	9.6%	4.00x
8	3.5%	9.1%	2.60x
9	4.4%	10.4%	2.36x
10	5.7%	10.1%	1.77x
11	6.2%	10.4%	1.68x
12	7.4%	14.1%	1.91x

Marijuana, hashish use.

Based on the chi-square test, there was a significant association between reported use of marijuana, hashish and nonsport participation for 6th grade respondents ($p = .000$), 7th grade respondents ($p = .000$), 8th grade respondents ($p = .000$), 9th grade respondents ($p = .000$), 10th grade respondents ($p = .000$), 11th grade respondents ($p = .000$), and 12th grade respondents ($p = .000$).

As with the reported use of smoking tobacco, crosstabulation showed the percentage of respondents never having used marijuana, hashish was greater than the

percentage of respondents in any other category of use. This included the nonsport activity participants as well as those who reported no participation. A greater percentage of respondents involved in 11+ hours of participation reported use of marijuana, hashish almost every day than the percentage involved in 1-5 hours of participation. The percentage of sixth, seventh, and eighth grade respondents who participated in 11+ hours of nonsport activity and reported almost daily use of marijuana, hashish was four times higher than the percentage who participated in 1-5 hours. Table 111 summarizes these findings by grade level.

Table 111

Nonsport Activity Participation and Percentage of Reported Almost Daily Marijuana, Hashish Use by Grade

Grade	Nonsport activity participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
6	1.1%	5.3%	4.82x
7	2.0%	8.0%	4.00x
8	4.0%	16.3%	4.08x
9	4.9%	13.6%	2.78x
10	3.8%	11.6%	3.05x
11	4.6%	10.8%	2.35x
12	6.3%	12.2%	1.94x

Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student gender?

Alcohol use.

Chi-square test showed there was a significant association between reported use of alcohol and nonsport participation for male respondents ($p = .000$) and female respondents ($p = .000$).

Crosstabulation showed the greatest percentage of respondents reported experimenting with alcohol as compared to percentage of responses in any other category of use. A

greater percentage of males, as a group, reported use of alcohol almost every day than did females. A greater percentage of males and females who participated in 11+ hours of nonsport activity reported frequent use of alcohol (use almost every week and use almost every day) than the percentage that participated in 6-10 and 1-5 hours of nonsport activity as well as nonparticipants. Also noted with frequent reported use was the consistency of an increased percentage of respondents with each increase in hours of participation. The percentage of male respondents who participated in 11+ hours of nonsport activity and reported use of alcohol almost every day was triple the percentage of males who participated in 1-5 hours of activity. The percentage of female respondents who participated in 11+ hours of nonsport activity and reported use of alcohol almost every day was five times greater than the percentage that participated in 1-5 hours of nonsport activity. Table 112 summarizes these findings by gender.

Table 112

Nonsport Activity Participation and Percentage of Reported Almost Daily Alcohol Use by Gender

Gender	Nonsport activity participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
Male	3.2%	9.6%	3.00x
Female	1.1%	6.2%	5.64x

Smoking tobacco use.

Chi-square test showed a significant association between reported use of smoking tobacco and nonsport participation for male respondents ($p = .000$) and female respondents ($p = .000$).

Crosstabulation showed a greater percentage of respondents reported having never used smoking tobacco in life as compared to responses in any other category of use. A greater percentage of males, as a group, reported frequent use (use almost every week and use almost every day) of smoking tobacco than did females. Interestingly, as hours of participation in nonsport activity increased there was an increase in the percentage of respondents who reported frequent use of cigarettes and cigars. The percentage of both male and female respondents who

participated in 11+ hours of nonsport activity was over double the percentage of respondents who participated in 1-5 hours of nonsport activity for use of smoking tobacco almost every day. Table 113 summarizes these findings.

Table 113

Nonsport Activity Participation and Percentage of Reported Almost Daily Smoking Tobacco Use by Gender

Gender	Nonsport activity participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
Male	4.8%	12.9%	2.69x
Female	3.6%	8.1%	2.25x

Marijuana, hashish use.

Based on the chi-square test, there was a significant association between reported use of marijuana, hashish and nonsport participation for male respondents ($p = .000$) and female respondents ($p = .000$).

Crosstabulation showed a greater percentage of respondents reported having never used marijuana, hashish in life as compared to responses in any other category of use. A greater percentage of males, as a group, reported frequent use (use almost every week and use almost every

day) of marijuana, hashish almost every day than did percentage of females. As with smoking tobacco use among nonsport activity participants, there was an increase in the percentage of participants who reported use of marijuana, hashish almost every day with each increase in hours of participation. More than double the percentage of males who participated in 11+ hours of nonsport activity reported use of marijuana, hashish almost every day than the percentage of participants in 1-5 hours of activity; the percentage of female respondents was 4.21x greater with the higher level of activity. Table 114 summarizes these findings.

Table 114

Nonsport Activity Participation and Percentage of Reported Almost Daily Marijuana, Hashish Use by Gender

Gender	Nonsport activity participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
Male	5.7%	15.0%	2.63x
Female	1.9%	8.0%	4.21x

Is there a statistically significant relationship between secondary school students' self-reported substance use and extent of participation in school sponsored and/or community sponsored nonsport activity by student race/ethnicity?

Alcohol use.

Based on the chi-square test, there was a significant association between reported use of alcohol and nonsport participation for White respondents ($p = .000$) and Black respondents ($p = .000$).

Crosstabulation showed a greater percentage of both White and Black respondents reported experimentation with alcohol than the percentage of respondents who reported never having used alcohol in life. A greater percentage of White and Black respondents who participated in 11+ hours of nonsport activity reported use of alcohol almost every day than the percentage that participated in 1-5 hours of nonsport activity. The percentage of White and Black respondents in 11+ hours of nonsport participation who reported use of alcohol almost every day was more than double the percentage of respondents who participated in 1-5 hours of nonsport activity. Table 115 summarizes these findings.

Table 115

Nonsport Activity Participation and Percentage of Reported Almost Daily Alcohol Use by Race/Ethnicity

Race/ Ethnicity	Nonsport activity participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
White	1.6%	5.2%	3.25x
Black	2.3%	5.1%	2.22x

Smoking tobacco use.

Based on the chi-square test, there was a significant association between reported use of smoking tobacco and nonsport participation for White respondents ($p = .000$) and Black respondents ($p = .000$).

Crosstabulation showed a greater percentage of respondents reported never having used smoking tobacco as compared to the percentage of responses in any other category of use. It was noted that the percentage of respondents who reported frequent use (use almost every week and use almost every day) increased as hours of participation in nonsport activity increased. A greater percentage of White nonsport activity respondents, as a group, reported use of smoking tobacco almost every day than did the percentage of Black respondents; the greatest

percentage of respondents who reported use of smoking tobacco almost every day was White nonparticipants.

Analysis also showed that a greater percentage of White and Black respondents who participated in 11+ hours of nonsport activity reported use of smoking tobacco almost every day than the percentage of respondents who participated in 1-5 hours of nonsport activity. Table 116 summarizes these findings.

Table 116

Nonsport Activity Participation and Percentage of Reported Almost Daily Smoking Tobacco Use by Race/Ethnicity

Race/ Ethnicity	Nonsport activity participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
White	5.2%	10.0%	1.92x
Black	1.9%	6.2%	3.26x

Marijuana, hashish use.

Based on the chi-square test, there was a significant association between reported use of marijuana, hashish and nonsport participation for White respondents ($p = .000$) and Black respondents ($p = .000$).

Crosstabulation showed that the percentage of

respondents who reported never having used marijuana, hashish was greater than the percentage of respondents in any other category of use. This included the nonsport activity participants as well as those who reported no participation. A greater percentage of White respondents, as a group, reported frequent use (use almost every week and use almost every day) of marijuana, hashish than did percentage of Black respondents. The percentage of respondents who reported use of marijuana, hashish was greater with increase in hours of participation. More than double the percentage of both White and Black respondents who participated in 11+ hours of nonsport activity reported use of marijuana, hashish almost every day than percentage of respondents who participated in 1-5 hours of activity. Table 117 summarizes these findings by race/ethnicity.

Table 117

Nonsport Activity Participation and Percentage of Reported Almost Daily Marijuana, Hashish Use by Race/Ethnicity

Race/ Ethnicity	Nonsport activity participation		Difference in % of respondents
	1-5 Hours	11+ Hours	
White	4.1%	10.2%	2.49x
Black	2.5%	6.7%	2.68x

Employment

Is there a statistically significant relationship between the number of hours a secondary school student participates in school sponsored and/or community sponsored sport and athletic activity together with hours employed after school and/or on weekends and the students' self-reported substance use?

Alcohol use.

Based on the chi-square test, there was a significant association between employment of 5-10 hours, sport/athletic participation, and alcohol use ($p = .011$), employment of 11-20 hours, sport/athletic participation, and alcohol use ($p = .008$), and employment more than 20 hours, sport/athletic participation, and alcohol use ($p = .000$).

Crosstabulation showed the percentage of respondents who reported having tried alcohol once or twice and those who reported use in the past 30 days were greater at each level of work and sport/athletic participation than those who reported never having used alcohol in life. Among respondents who worked more than 20 hours per week, a greater percentage reported use of alcohol almost every day when also participating in sport/athletic activity 11+ hours. Table 118 summarizes these findings. While the study by Resnick et al. (1997) did not include the

sport/athletic participation variable, the study showed that working 20 or more hours per week was associated with increased use of alcohol among older students. Similarly, Safron et al. (2001) and Steinberg and Dornbusch (1991) found students who worked more hours each week reported significantly higher rates of alcohol use.

Table 118

Employment Together With Sport/Athletic Participation and Percentage of Reported Almost Daily Alcohol Use

Employment hours	Sport/Athletic participation		Difference in % of respondents	
	1-5 Hours	11+ Hours	Greater	Lesser
5-10	0.7%	0.6%		1.17x
11-20	0.4%	0.6%	1.50x	
>20	0.8%	2.3%	2.88x	

Smoking tobacco use.

Based on the chi-square test, there was a significant association between employment of 5-10 hours, sport/athletic participation, and smoking tobacco use ($p = .028$). There was no significant association between employment of 11-20 hours, sport/athletic participation, and smoking tobacco use ($p = .077$), and employment more

than 20 hours, sport/athletic participation, and use of smoking tobacco ($p = .089$).

Crosstabulation consistently showed that the percentage of respondents who reported having never used smoking tobacco was greater than the percentage of respondents in any other category of use. Interestingly, a lesser percentage of respondents who worked 5-10 hours per week reported use of smoking tobacco in each category as sport/athletic participation increased. More than double the percentage of respondents who worked 5-10 hours and participated in sport/athletic activity 1-5 hours reported use of smoking tobacco almost every day than the percentage of respondents who participated in 11+ hours of sports. This was also the finding among respondents who worked 11-20 hours per week. A higher percentage of respondents who worked more than 20 hours per week and participated in sport/athletic activity 11+ hours reported use of smoking tobacco almost every day than percentage of respondents in any other category of sport/athletic participation. Table 119 summarizes these findings.

Table 119

Employment Together With Sport/Athletic Participation and Percentage of Reported Almost Daily Smoking Tobacco Use

Employment hours	Sport/Athletic participation		Difference in % of respondents	
	1-5 Hours	11+ Hours	Greater	Lesser
5-10	1.8%	0.7%		2.57x
11-20	1.7%	0.7%		2.43x
>20	2.7%	3.0%	1.11x	

Marijuana, hashish use.

Based on the chi-square test, there was a significant association between employment of 5-10 hours, sport/athletic participation, and marijuana, hashish use ($p = .030$) and employment more than 20 hours, sport/athletic participation, and use of marijuana, hashish ($p = .000$). There was no significant association between employment of 11-20 hours, sport/athletic participation, and marijuana, hashish use ($p = .136$).

Crosstabulation consistently showed that the percentage of respondents who reported having never used marijuana, hashish was greater than the percentage of respondents in any other category of use. Among respondents who worked 5-10 hours per week and participated in 1-5 or

11+ hours of sport/athletic activity, an equal percentage reported use of marijuana, hashish almost every day.

Interestingly, the percentage of respondents working 11-20 hours who reported almost daily use of marijuana, hashish decreased two-fold with an increase in sport/athletic participation (1-5 hours to 11+ hours). A greater percentage of respondents who worked more than 20 hours per week and participated in sport/athletic activity 11+ hours reported use of marijuana, hashish almost every day than respondents in any other category of sport/athletic participation. Table 120 summarizes these findings.

Table 120

Employment Together With Sport/Athletic Participation and Percentage of Reported Almost Daily Marijuana, Hashish Use

Employment hours	Difference in participation		% of respondents	
	1-5 Hours	11+ Hours	Greater	Lesser
5-10	1.0%	1.0%	---	---
11-20	1.4%	0.6%		2.33x
>20	1.7%	3.2%	1.88x	

Is there a statistically significant relationship between the number of hours a secondary school student participates in school sponsored and/or community sponsored nonsport activity together with hours employed after school and/or on weekends and the students' self-reported substance use?

Alcohol use.

Based on the chi-square test, there was no significant association between employment of 5-10 hours, nonsport participation, and alcohol use ($p = .880$). Chi-square test indicated a significant association between employment of 11-20 hours, nonsport activity participation, and alcohol use ($p = .039$) and employment more than 20 hours, nonsport activity participation, and alcohol use ($p = .000$).

Crosstabulation showed the highest percentage of respondents who reported having tried alcohol once or twice was greater at each level of work and nonsport activity participation than the percentage that reported never having used alcohol in life. The percentage of respondents who reported use of alcohol almost every day decreased with increased nonsport activity participation among those who worked 5-10 hours and 11-20 hours. The greatest percentage of respondents who reported use of alcohol almost every day worked more than 20 hours and participated in 11+ hours of nonsport activity. Table 121 summarizes these findings.

Table 121

Employment Together With Nonsport Activity Participation and Percentage of Reported Almost Daily Alcohol Use

Employment hours	Nonsport activity participation		Difference in % of respondents	
	1-5 Hours	11+ Hours	Greater	Lesser
5-10	1.3	0.3%		4.33x
11-20	1.0%	0.4%		2.50x
>20	1.2%	2.0%	1.67x	

Smoking tobacco use.

Chi-square test showed no significant association between employment of 5-10 hours, nonsport participation, and smoking tobacco use ($p = .764$). There was significant association between employment of 11-20 hours, nonsport participation, and smoking tobacco use ($p = .000$) and employment more than 20 hours, nonsport participation, and use of smoking tobacco ($p = .000$).

Crosstabulation showed that the percentage of respondents who reported having never used smoking tobacco was greater than the percentage of respondents in any other category of use. The percentage of respondents who reported use of smoking tobacco decreased with increased nonsport activity participation among those who also worked 5-10

hours and 11-20 hours. A greater percentage of respondents who worked more than 20 hours per week reported use of smoking tobacco almost every day when also participating in 1-5 hours or 11+ hours of nonsport activity. Table 122 summarizes these findings.

Table 122

Employment Together With Nonsport Activity Participation and Percentage of Reported Almost Daily Smoking Tobacco Use

Employment hours	Nonsport activity participation		Difference in % of respondents	
	1-5 Hours	11+ Hours	Greater	Lesser
5-10	3.2%	0.8%		4.00x
11-20	2.8%	0.9%		3.11x
>20	3.7%	3.4%		1.09x

Marijuana, hashish use.

Based on the chi-square test, there was no significant association between employment of 5-10 hours, nonsport participation, and marijuana, hashish use ($p = .876$). There was significant association between employment of 11-20 hours, nonsport participation, and marijuana, hashish use ($p = .001$) and employment more than 20 hours, nonsport participation, and use of marijuana, hashish ($p = .000$).

Crosstabulation showed the percentage of respondents who reported having never used marijuana, hashish was greater than the percentage of respondents in any other category of use. The percentage of respondents who reported experimentation, use in past 30 days, and use almost every week decreased with each increase in nonsport activity participation while working 5-10 hours and 11-20 hours. This pattern was also noted with percentage of respondents who reported use of marijuana almost every day. A greater percentage of respondents who worked more than 20 hours and participated in 11+ hours of nonsport activity reported use of marijuana, hashish almost every day than the percentage of respondents who participated in 11+ hours of nonsport activity and worked 11-20 hours or 1-5 hours. Table 123 summarizes these findings.

Table 123

Employment Together With Nonsport Activity Participation and Percentage of Reported Almost Daily Marijuana, Hashish Use

Employment hours	Nonsport activity participation		Difference in % of respondents	
	1-5 Hours	11+ Hours	Greater	Lesser
5-10	2.4%	0.6%		4.00x
11-20	2.9%	1.1%		2.64x
>20	2.5%	2.6%	1.04x	

Conclusion

The search to understand and influence substance use among adolescents continues. Risk and protective factor research has been an avenue of investigation into adolescent substance use. According to Hawkins et al. (1992), a risk-focused approach to drug abuse prevention holds promise for identifying effective prevention strategies.

The positive benefits of extracurricular participation have long been promoted and accepted by society, yet the risks of participation must also be identified and addressed (Carr et al., 1990). Examination of the relationship between the extent of participation as measured in hours spent in school sponsored and/or community sponsored sport/athletic activity and school sponsored and/or community sponsored nonsport activity and reported substance use among middle and high school students has been limited. Examination of the relationship between substance use and both hours spent participating in sport or nonsport activity and hours employed has been even more limited.

There is a need for identifying and better understanding adolescent risk and protective factors and

how these interrelate with substance use. There is also a need to identify the level, if any, at which a factor moves from one classification to the next, such as a protective factor becoming a risk factor. This line of investigation has been understudied. This study adds to the literature base by exploring these relationships.

Substance use is reported among students participating in sport/athletic activity, nonsport activity, and employment, as well as among nonparticipants. This study showed that substance use is practiced among students in grades 6-12, among males and females, and across ethnicities.

This study showed that a greater percentage of respondents participating in sport/athletic activity in grades 7-12 reported experimental use of alcohol. A noted exception was the greater percentage of 6th grade respondents who reported never having used alcohol over experimentation. A higher percentage of male and female respondents and White and Black respondents reported experimentation with alcohol over never having used alcohol in life.

In contrast to alcohol, a greater percentage of respondents in grades 6-12, male and female respondents,

and White and Black respondents reported never having used smoking tobacco and marijuana, hashish than any other category of use.

A greater percentage of males, as a group, reported frequent use of alcohol, smoking tobacco, and marijuana, hashish than did females.

A greater percentage of Black respondents, as a group, reported use of alcohol almost every day than did White respondents. A greater percentage of White nonathletes reported use of smoking tobacco and marijuana, hashish almost every day than did Black respondents.

Including respondents in grades 6-12, males and females, and White and Black respondents, a higher percentage who participated in 11+ hours of sport/athletic activity reported use of alcohol, smoking tobacco, and marijuana, hashish than did percentage of respondents who participated in 1-5 hours of sport/athletic activity. The exceptions, as noted previously, were among 11th grade respondents with smoking tobacco use and 10th grade respondents with marijuana, hashish use. Consistently, the greatest difference between percentage of respondents who participated in 11+ hours of sport/athletic activity and reported use of substances almost every day and those in

1-5 hours was among the 6th grade respondents, female respondents, and Black respondents.

Among nonsport activity participants, a greater percentage of respondents reported experimental use of alcohol in grades 6-12, among males and females, and among both White and Black respondents. As with sport participation, a greater percentage of respondents in grades 6-12, male and female respondents, and White and Black respondents reported never having used smoking tobacco and marijuana, hashish than in any other category of use.

A greater percentage of males, as a group, reported use of alcohol, smoking tobacco, and marijuana, hashish every day than did females.

A greater percentage of Black respondents, as a group, reported use of alcohol almost every day than did White respondents. A greater percentage of White respondents, as a group, reported use of smoking tobacco and marijuana, hashish almost every day than did Black respondents.

Including respondents in grades 6-12, males and females, and White and Black respondents, a greater percentage of participants in 11+ hours of nonsport activity reported use of alcohol, smoking tobacco, and

marijuana, hashish almost every day than did percentage of respondents who participated in 1-5 hours of sport/athletic activity. The greatest difference in almost daily use between percentage of respondents in 11+ hours of nonsport activity and percentage of respondents in 1-5 hours was among the 6th grade respondents for each substance, among female respondents for use of alcohol and marijuana, hashish, among male respondents for use of smoking tobacco, among White respondents for use of alcohol, and among Black respondents for use of smoking tobacco and marijuana, hashish.

A greater percentage of respondents who were employed and participated in sport/athletic activity or nonsport activity reported experimental use of alcohol than any other category of use. In contrast to alcohol, the greatest percentage of respondents who were employed and participated in sport/athletic activity or nonsport activity reported never having used smoking tobacco or marijuana, hashish. Interestingly, the percentage of respondents who reported almost daily use of smoking tobacco decreased with increased sport/athletic participation among those who worked 5-10 and 11-20 hours as well as for almost daily use of marijuana, hashish

among those who worked 11-20 hours. Similarly, the percentage of respondents who reported almost daily use of alcohol, smoking tobacco, and marijuana, hashish decreased with increased nonsport activity among those who worked 5-10 hours and 11-20 hours.

A higher percentage of respondents reported using alcohol, smoking tobacco, or marijuana, hashish when involved in more than 20 hours of work per week and 11+ hours of sport/athletic participation than with lesser involvement in sport/athletic activity in conjunction with work at any level. This was also noted with participation in 11+ hours of nonsport activity and more than 20 hours of work per week for use of alcohol.

Statistically significant associations were found between reported use of substances almost every day and participation in 11+ hours of sport/athletic activity and nonsport activity as compared to participation in 1-5 hours, with noted exceptions. This suggests that participation in 11+ hours of sport/athletic activity or nonsport activity is a risk factor for increased use of substances almost every day. Based on noted increases in reported use with higher levels of involvement, participation should be closely monitored.

Similar substance use findings were noted with respondents who worked more than 20 hours per week and participated in 11+ hours of sport/athletic activity, as well as those who worked more than 20 hours per week and participated in 11+ hours of nonsport activity, with previously noted exceptions. The percentage of respondents decreased for almost daily use of substances with increased sport/athletic participation among those who worked 5-10 and 11-20 hours, with noted exceptions. This also held for participation in nonsport activity. This suggests that working less than 20 hours per week while participating in 1-10 hours of sport/athletic activity or nonsport activity is more protective against greater daily substance use. As well, this suggests that working more than 20 hours per week while participating in more than 11+ hours of sport/athletic activity or nonsport activity becomes a risk for greater use almost every day of substances examined.

Considering these findings, school nurses and counselors, coaches, and activity sponsors should work closely to form a dependable network upon which students and parents/guardians can rely for guidance and intervention. As well, collaborative efforts should be made among school personnel and community sport and/or activity

sponsors to coordinate education and intervention efforts.

Based on the study findings, the greatest difference between the percentage of participants in 11+ hours of sport/athletic activity and nonsport activity and those in 1-5 hours who reported almost daily substance use was among the sixth grade respondents for all substances examined; among male respondents for use of smoking tobacco with nonsport activity participation; among females for use of all substances examined with sport/athletic participation and use of alcohol and marijuana, hashish with nonsport participation; among White respondents for use of alcohol with nonsport participation; and among Black respondents for use of all substances examined with sport/athletic participation and for use of smoking tobacco and marijuana, hashish with nonsport activity.

Given the association between age of onset of risk behaviors and eventual negative outcomes, successful youth-service programs begin at the earliest period within the course of development (Lerner & Galambos, 1998). With the reported use among sixth grade participants in this study, a study to examine substance use in elementary students would help to identify significant points during the educational process at which drug intervention programs

should be initiated.

A great percentage of respondents reported experimentation with alcohol over any other category of use or nonuse. Developmental sequences are often observed in which use of certain substances is typically preceded by use of other substances (Kaplan et al., 1984). Education efforts to address the high percentage of reported experimentation with alcohol among respondents are warranted.

This study contributes to understanding the associations between substance use and hours participating in extracurricular activity and between substance use and combined involvement in extracurricular activity and employment. This study was conducted in Duval County, Florida, Public Schools, and the context-specific findings may not be generalizable across the population. However, within the limitations of the study design, the results of this study reveal a potentially important association between substance use and extent of participation in sport and athletic participation, nonsport activity participation, and participation in employment with extracurricular activity.

This study provides policy makers, educational

administrators, student services personnel, and community leaders with knowledge for developing and offering program opportunities that provide the greatest protective effects against substance use. Promotion of public policies that enable effective programs to be designed and sustained for all youth that need them is of value (Lerner & Galambos, 1998). The results of this study are promising in terms of identifying groups in which to help focus prevention and intervention efforts.

Extracurricular programs and student employment must be designed and offered to encourage student participation. Given the finding that suggests a protective factor becomes a risk factor for substance use based on the population and context, extent of student involvement, in turn, should be monitored to assure healthy participation.

Recommendations for Further Research

Based on the findings and conclusions presented in this study, recommendations for further study follow.

- Replications of this study ought be conducted in additional school districts with similar demographics. As well, replications of the study with dissimilar demographics might be conducted to examine varying cultural and social influences on the associations of substance use and participation in extracurricular activity and employment.
- Further research is needed to determine the relationships between risk and protective factors and adolescent drug use.
- A study to examine substance use among elementary students would help to identify significant points during the educational process at which drug intervention programs should be initiated.
- Among those students extensively involved in extracurricular activity who report frequent substance use, qualitative research is needed to examine beliefs and motivations that they attach to their decisions about substance use.

- Research is needed to assess reported substance use patterns and extent of participation of athletes from sport to sport. Also, research is needed to examine reported substance use patterns and extent of participation of students from nonsport activity to nonsport activity.
- Future research is needed to examine the collaboration between school health officials, counselors, athletic sponsors and coaches, and nonsport activity sponsors. Of interest would be the characteristics of the student population that most readily seek support services.
- Focus group studies to examine student attitudes toward survey instruments and honesty with which responses are reported are needed.

**THE DUVAL
ALCOHOL, TOBACCO, OTHER DRUGS, AND VIOLENCE SURVEY:
KNOWLEDGE, ATTITUDES, AND BEHAVIORS**

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PLEASE LISTEN CAREFULLY WHILE THE INSTRUCTIONS ARE READ TO YOU.

Your participation in this survey will help us to better use school and community resources.

All responses are **CONFIDENTIAL AND ANONYMOUS**.

We appreciate your honest participation.

Unless otherwise instructed, please mark only one answer for each question

1. In what section of Jacksonville do you live?	A. Arlington B. Beaches C. Mandarin	D. Northside E. Southside F. Westside
2. What is your age today?	A. 12 years or younger B. 13 - 14 years C. 15 - 16 years	D. 17- 18 years E. 19 years or older
3. What grade are you in?	A. 6th grade B. 7th grade C. 8th grade D. 9th grade	E. 10th grade F. 11th grade G. 12th grade H. Other
4. How do you describe yourself?	A. White, (not of Hispanic origin) B. Black, (not of Hispanic origin) C. Hispanic D. American Indian Or Alaskan Native E. Asian or Pacific Islander F. Multi-Racial	
5. What is your gender (sex)?	A. Male B. Female	
6. Which of the following best describes the grades that you usually make?	A. A B. B C. C	D. D E. F
7. How would you describe the school classes that you are in most of the time?	A. Regular Education B. Exceptional Education (ESE) C. Vocational Education D. Advanced Placement (AP), Honors, Gifted E. None of the above	

8. This school year, how many hours per week do you usually participate in <u>sports and athletics</u> at school or in your community? (Such as soccer, football, cheerleading, swimming or other sports?)	A. None, I am not in an organized sport B. 1-5 hours per week C. 6-10 hours per week D. 11 or more hours per week
9. This school year, how many hours per week do you usually participate in <u>non-sport activities</u> at school or in your community? (Such as music groups, clubs, scouts, church or other youth groups?)	A. None, I do not participate B. 1-5 hours per week C. 6-10 hours per week D. 11 or more hours per week
10. Are you currently employed after school on weekends? If yes, approximately how many hours per week do you work?	A. No, I do not have a job B. Yes, I work 5-10 hours per week C. Yes, I work 11-20 hours per week D. Yes, I work more than 20 hours per week
11. Have you taken a class this school year that provides information about the use of alcohol, tobacco or other drugs?	A. Yes B. No C. I don't know
12. Either in-school or after school, do you participate in any of the following activities?	A. No, I do not B. Youth Crime Watch C. SWAT D. ZIP Clubs (SAP, SADD, D-FY-INCE, etc.) E. TEAM-UP F. Peer Mediation
<u>Mark each one that you are in.</u>	

Statements 13-23 are about Your School and Community. Please mark one answer only.			
13. In my school, there are many opportunities for students to participate in decision-making about school activities.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
14. I think good grades are important.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
15. I think a good education is important.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
16. I think I will eventually graduate from college.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
17. My school is a safe place.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
18. My neighborhood is a safe place.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
19. My school is a place where I am treated with respect.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
20. My neighborhood has lots of drug buying and selling.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
21. There are one or more adults in my life who really care about my goals, grades, friends, activities and me.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
22. When I have a problem, I can get help from my mom or dad.	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True
23. When I have a problem, I can get help from an adult I trust (such as a teacher, a relative or counselor).	A. Always or Mostly True	B. Sometimes True	C. Rarely or Never True

Questions 24 - 46 ask about your use of Alcohol, Tobacco and Other Drugs.

Substance	For each substance, select the <u>One</u> answer that <u>BEST</u> describes your level of use.				
24. Alcohol such as Beer, Wine or Hard Liquor	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
25. Wine Coolers and Fruit-Flavored Alcohol Drinks	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
26. Cigarettes, or Cigars (Blacks and Milds)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
27. Smokeless Tobacco (Chewing Tobacco, Snuff or Spit)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
28. Marijuana, Hashish (Weed, Grass, Pot)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
29. Inhalants (Any gaseous substances breathed in to get a 'high', such as glues, aerosols, paints, etc.)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
30. Amphetamines (Uppers, Speed, Bennies, and Dexies)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
31. Barbiturates (Quaaludes, Downs, Downers, Goofballs, Yellows, Reds, Blues and Rainbows)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
32. Cocaine or Crack Cocaine	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
33. Club Drugs (GHB, Ecstasy, MDMA, Beans, Rolls, Adam)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
34. Depressants (Xanax®, Downers, Zannie-bars)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day

35. Hallucinogens (Other than LSD such as Mescaline, Peyote, Phencyclidine, Mushrooms)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
36. Heroin	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
37. Ketamine- hydrochloride (<i>Special K, Super C, Ketaset</i>)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
38. LSD (Lysergic Acid Diethylamide)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
39. Meth amphetamines (Crystal-meth)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
40. Narcotics (<i>OxyContin</i>)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
41. Nosedol (N.O.S., D.O.L.)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
42. Rohypnol (Roofies)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
43. Steroids (Anabolic; Taken to build muscle mass or to enhance athletic ability)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
44. Tranquilizers (Librium®, Valium® and Miltown®)	A. I have never used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
45. Misuse of drugs prescribed by a doctor. (Such as Ritalin® or Aderol®)	A. I have never mis- used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day
46. Misuse of Over- The-Counter Drugs (The use of drugs bought at the store to get high.)	A. I have never mis- used in my life	B. I have tried once or twice, but I do not use regularly	C. I have used in the past 30 days	D. I use almost every week	E. I use almost every day

Questions 47 – 51 Ask about the first time in your life you used drugs?

At what age did you first start using ...						
47. Alcohol (Any Kind)	A. Never	B. 10 or under	C. 11-12	D. 13-14	E. 15-16	F. 17 or over
48. Tobacco (Any Kind)	A. Never	B. 10 or under	C. 11-12	D. 13-14	E. 15-16	F. 17 or over
49. Marijuana (Weed, Pot)	A. Never	B. 10 or under	C. 11-12	D. 13-14	E. 15-16	F. 17 or over
50. Inhalants (Substances you sniff or smell)	A. Never	B. 10 or under	C. 11-12	D. 13-14	E. 15-16	F. 17 or over
51. Other illegal drugs	A. Never	B. 10 or under	C. 11-12	D. 13-14	E. 15-16	F. 17 or over

Questions 52 - 56 Ask about your habits concerning the use of Alcohol, Tobacco and Other Drugs	
Please choose only one answer.	
<p>52. If you Currently Use alcohol, <i>how many times have you had enough to feel high or buzzed <u>In The Past Month (30 days)</u>?</i></p> <p><i>If You Don't Currently Use , Mark A.</i></p>	<p>A. I do not currently use alcohol. B. I have used, but not in the past month. C. 1 - 5 times in the past month. D. 6 - 9 times in the past month. E. 10 - 19 times in the past month. F. 20 or more times in the past month.</p>
<p>53. If you use alcohol, tobacco or any of the drugs mentioned in this survey, where do you use them <u>most of the time</u>?</p> <p><i>If You Don't Currently Use , Mark A.</i></p>	<p>A. I do not currently use alcohol, tobacco or other drugs B. At school or at school activities C. At home or a friend's house D. In an automobile E. At a public place like a playground, at the bus stop, or the mall F. Clubs</p>
<p>54. Most of the time, where do you get alcohol, tobacco or other drugs?</p> <p><i>If You Don't Currently Use , Mark A.</i></p>	<p>A. I do not currently use alcohol, tobacco or other drugs B. From school friends C. From a family member D. From a person at work E. From someone in my neighborhood F. Other</p>
<p>55. Have you ever taken two or more illegal drugs at the same time (alcohol, marijuana, pills, etc.)? How many times in the last thirty days?</p> <p><i>If You Don't Currently Use , Mark A.</i></p>	<p>A. I do not currently use alcohol, tobacco or other drugs B. Just one to see what it was like C. 2-4 times D. 6-9 times E. 10 or more times</p>

56. Why would you use alcohol, tobacco or other illegal drugs?	A. I do not currently use alcohol, tobacco or other drugs B. Curiosity, to see what its like. C. Just for fun, to have a good time. D. Cope with family stress. E. Cope with school stress. F. To feel like I belong or 'Fit In'.
<i>If You Don't Currently Use , Mark A</i>	

Statements 57 - 63 are about how people might be affected by using alcohol, tobacco or other drugs.

Read each statement, and then tell us whether you believe it to be either true or false.		
57. Using marijuana helps people understand themselves better.	A. True	B. False
58. Smoking cigarettes helps control emotions like anger and frustration.	A. True	B. False
59. Regular, heavy use of inhalants (like glue or paint) may damage a person's brain.	A. True	B. False
60. Sharing drug needles makes a person more likely to get the HIV/AIDS Virus.	A. True	B. False
61. The more a person smokes marijuana, the less of the drug it takes to get high.	A. True	B. False
62. Mixing alcoholic drinks with soft drinks makes the alcohol enter the blood faster.	A. True	B. False
63. Mixing drugs or alcohol with power or energy drinks (like Gatorade® or Red Bull®) reduces the possibility of harmful effects.	A. True	B. False

Questions 64 - 67 deal with how your friends and others might feel about drug use.

Please tell us how strongly you agree or disagree with each of the following statements.	
64. Most of my friends think that it is normal for teens to experiment with alcohol, tobacco or other drugs.	A. Strongly Agree B. Agree C. Neither Agree or Disagree D. Disagree E. Strongly Disagree
65. Most of my friends would disapprove if I used alcohol, tobacco or other drugs.	A. Strongly Agree B. Agree C. Neither Agree or Disagree D. Disagree E. Strongly Disagree
66. My parents or guardians would disapprove if I used alcohol, tobacco or other drugs.	A. Strongly Agree B. Agree C. Neither Agree or Disagree D. Disagree E. Strongly Disagree
67. My teachers, coaches, counselors, club sponsors or other school staff would disapprove if I used alcohol, tobacco or other drugs.	A. Strongly Agree B. Agree C. Neither Agree or Disagree D. Disagree E. Strongly Disagree

Statements 68 - 75 describe situations in which you might be offered alcohol, tobacco or other drugs.

For each situation, mark the responses that describe the actions you would most likely take.	
68. A friend offers to drive you home from a party. You know that he/she has been drinking or doing drugs. You would most likely ...	<ul style="list-style-type: none"> A. Accept the ride B. Tell him/her that you have another ride C. Tell him/her that you won't ride with someone that has been drinking or doing drugs D. Ask your friend not to drive E. Take the keys from your friend and arrange a ride for both of you
69. A close friend asks you to try some drugs like, LSD, Ecstasy or MDMA. Your friend has never taken drugs and wants to take it with you for the first time. You would most likely ...	<ul style="list-style-type: none"> A. Tell your friend to take the drugs with someone else B. Say that you might take the drugs, but then avoid your friend for a while and hope the subject is forgotten C. Suggest that the two of you find something safer to do D. Take the drugs with your friend
70. You are at a fast food restaurant with several friends. One offers you a cigarette. You would most likely ...	<ul style="list-style-type: none"> A. Say that you don't smoke. B. Decline the offer, saying that you want to wait awhile. C. Smoke the cigarette. D. Tell the person that you can't smoke because you have a chest cold.
71. You are riding to a school football game with a group of your friends. On the way, one person suggests that everyone smoke marijuana. Several people start to smoke. You would most likely ...	<ul style="list-style-type: none"> A. Say to your best friend, "I'm not going to smoke it, are you?" B. Pass the marijuana without smoking it C. Smoke the marijuana D. Refuse the marijuana and find another ride home
72. You are facing a boring weekend at home and feel very lonely. You would most likely . . .	<ul style="list-style-type: none"> A. Go shopping B. Drink a wine cooler C. Watch television D. Smoke a cigarette E. Call a friend
73. You are at a party where you know very few people. You are feeling uncomfortable. Which of the following would you like to do in order to feel more comfortable? You would most likely . . .	<ul style="list-style-type: none"> A. Talk to someone you know B. Drink a beer C. Smoke some pot D. Introduce yourself to a stranger E. Leave the party

74. You feel tense because you are under pressure to perform well on final exams. Which of the following would you like to do in order to reduce your tension? You would most likely . . .	A. Engage in physical exercise or a sports activity B. Study harder so that you do well on your finals C. Smoke a joint so you can mellow out D. Spend time with close friends or family E. Use some over-the-counter drugs to help you stay awake and study
75. You are feeling down because things have not been going your way. You would most likely . . .	A. Go out with your friends or play a sport B. Smoke a cigarette C. Sleep more than usual D. Smoke some marijuana or take some other drug E. Talk to someone about how you feel

Questions 76 - 83 describe ways that students might deal with fighting and other aggressive behaviors.

Select the answer that best describes what you believe is true.

76. If another student hits me, I usually hit him/her back.	A. Always True	B. Sometimes True	C. Never True
77. If I walked away from a fight, I'd be called a coward.	A. Always True	B. Sometimes True	C. Never True
78. It is ok to hit someone who hits you first.	A. Always True	B. Sometimes True	C. Never True
79. If someone teases or makes fun of me, I can't get him/her to stop unless I hit him/her.	A. Always True	B. Sometimes True	C. Never True
80. It is ok for me to hit someone who is talking about my family.	A. Always True	B. Sometimes True	C. Never True
81. If I were going to fight, I would want to use a knife, gun or other weapon.	A. Always True	B. Sometimes True	C. Never True
82. When someone bothers me at school, I tell a teacher or another adult at school.	A. Always True	B. Sometimes True	C. Never True
83. It's fun to pick on or make fun of someone who is smaller or weaker than I am.	A. Always True	B. Sometimes True	C. Never True

Questions 84 - 90 ask about your personal behavior during the Current School Year.

During this school year, have you?

84. Carried a handgun or other weapon to school?	A. Yes	B. No
85. Physically fought with someone with the intention of really hurting him or her?	A. Yes	B. No
86. Stolen something that is valued at \$25 or more?	A. Yes	B. No
87. Been disciplined for possession or use of tobacco products?	A. Yes	B. No
88. Been disciplined for possession or use of alcohol?	A. Yes	B. No
89. Been disciplined for possession or use of marijuana or other drugs?	A. Yes	B. No
90. Bought or sold drugs at school or at a school event?	A. Yes	B. No

Items 91 – 98 ask you to tell us what has helped you or would motivate you to not use alcohol, tobacco, or other drugs or engage in violence.

How much has each of the following helped you to resist drugs and violence?

	A.	B.	C.	D.
91. Family Values: How my parents or other family members feel about drugs and violence	A Lot	Some	A Little	None
92. Fear: The fear of getting in trouble or doing harm to myself or others	A Lot	Some	A Little	None
93. Education: Knowledge about the harmful effects of drugs and violence	A Lot	Some	A Little	None
94. Friends: Concern for what my friends might think of me	A Lot	Some	A Little	None
95. Role Models: The desire to be like someone you admire.	A Lot	Some	A Little	None
96. Teacher: The influence of teachers, coaches, counselors or other school personnel	A Lot	Some	A Little	None
97. Other Adults: A member of the community or a faith-based organization.	A Lot	Some	A Little	None
98. Overall, Where have you learned <u>the most</u> about the dangers of drugs and violence? Please select only one.	A. From religious or faith based groups or organizations B. From community organizations C. At home D. From programs and classes during the regular school day E. From participation in after school programs			

99. Finally, How Accurate And Honest Are Your Answers To The Questions In This Survey?

- A. Completely Accurate And Honest.
 B. Pretty Much Accurate And Honest.
 C. Not Very Accurate And Honest.
 D. Not At All Accurate And Honest.



END OF SURVEY.

THANK YOU!



Appendix B

Licit and Illicit Substances

In order to provide a basic understanding of the classes of drugs in which the substances of consideration in this study fall and the implications of use, descriptions of each follow.

Cannabis

The plant *Cannabis sativa* is the botanical name for the hemp plant that is the source of the intoxicant Tetrahydrocannabinol (THC), the active agent in marijuana, hashish, ganja, and bhang (Carson-DeWitt, 2001a). A marijuana cigarette that contains approximately 2 percent of the active ingredient can produce an increase in feelings of well-being, euphoria, and relaxation when smoked (Carson-DeWitt). However, effects may include impairment of short-term memory, difficulty in thinking and problem solving, decreased performance on mental tests, distortions of auditory and visual perception, loss of coordination, increased heart rate, decreased physical activity, and drowsiness, and with higher doses, paranoia, hallucinations, and anxiety or

panic may be manifested (Bellenir, 2000; Carson-DeWitt; Jones, Shainberg, & Byer, 1973).

Depressants

A depressant is any drug or chemical that depresses the activity of the central nervous system (Bellenir, 2000; Carson-DeWitt, 2001a; Fay, 1988). Physiological effects of depressant use include a decrease in pulse rate, respiratory rate, sensory perception, and psychic and motor activities (Jones et al., 1973). Depressant drugs affect the central nervous system similarly in a progression depending on dosage from anxiety reduction to sedation, hypnosis (sleep), anesthesia, coma, and even death (Fay). Drugs classified within this category include alcohol, barbiturates, sedatives (including Rohypnol), and tranquilizers.

Hallucinogens

A hallucinogen is a natural or synthetic psychoactive drug that produces marked distortions of the senses and changes in perception (Fay, 1988). According to Bellenir (2000), effects of hallucinogens taken in nontoxic dosages include changes in perception, thought,

and mood. Physiological effects include increases in heart rate, blood pressure, and body temperature, exaggerated reflexes, and pupillary dilation (Bellenir; Carson-DeWitt, 2001b). Sensory effects include perceptual distortions that vary with dose, setting, and mood (Bellenir). Psychic effects include disorders of thought associated with time and space (Bellenir). Hallucinogens may produce hallucinations, which are perceptions of sounds, odors, tactile sensations, or visual images that are not caused by external stimuli but arise from within the person (Fay). Acute adverse reactions include panic attacks and self-destructive behavior (Carson-DeWitt). Naturally occurring hallucinogens include peyote, mescaline, and psilocybin. Synthetic hallucinogens include LSD (lysergic acid diethylamide), MDMA/Ecstasy, and PCP (phencyclidine).

Inhalants

Inhalants are breathable chemical vapors that depress the central nervous system (Cohen, 1979) and produce psychoactive effects (Bellenir, 2000). Inhalants are categorized as solvents, gases, or nitrites and may

be sniffed directly from an open container or "huffed" from a rag soaked in the substance and held to the face (Bellenir). The effects of inhalant intoxication include stimulation and loss of inhibition followed by depression at high doses (Bellenir). According to Bellenir, users report distortion in perceptions of time and space with many users experiencing headaches, nausea, or vomiting, slurred speech, loss of motor coordination, and wheezing. Fatal toxic reactions, usually due to cardiac arrhythmias, are often associated with the inhalation of many of these drugs (Carson-Dewitt, 2001a).

Narcotics

In a legal context, narcotic refers to opium, opium derivatives, and their semisynthetic or totally synthetic substitutes (Bellenir, 2000). According to Bellenir, drug effects depend heavily on the dose, route of administration, previous exposure to the drug, and the expectation of the user. Aside from their clinical use in the treatment of pain, cough suppression, and acute diarrhea, narcotics produce a general sense of well-being by reducing tension, anxiety, and aggression (Bellenir).

While these effects are helpful in the therapeutic setting, they contribute to the likelihood of abuse (Bellenir). Bellenir writes that narcotic use is associated with a variety of unwanted effects including drowsiness, inability to concentrate, apathy, constipation, nausea and vomiting, and respiratory depression. Substances in this category include opium, morphine, codeine, heroin, and oxycontin.

Over-the-counter drugs (OTC)

Over-the-counter drugs are those drugs that may be purchased without a prescription (Carson-DeWitt, 2001b; Fay, 1988). Some of the more than 500,000 over-the-counter products that are available have the potential to be misused or abused (Carson-DeWitt). Antihistamines, hypnotics, decongestants, analgesics, laxatives, and diet pills are often consumed in higher than recommended quantities (Carson-DeWitt). They have been shown to cause physical and/or psychological dependence (Carson-DeWitt). Some combinations of over-the-counter pills can over-stimulate the heart and central nervous system, causing strokes and death (Carson-DeWitt).

Steroids, Anabolic

Anabolic steroids are synthetic derivatives of the male hormone, testosterone (Bellenir, 2000). According to Brooks and Fahey (1985), male hormones exert both androgenic and anabolic effects. Androgenic effects are characterized by changes in primary and secondary sexual characteristics. These include enlargement of the penis and testes in males and clitoral enlargement in females, changes in the voice, hair growth on the face, the axilla, and the genital areas, and increased aggressiveness (Brooks & Fahey). The anabolic effects of androgens are characterized by accelerated growth of the muscle, bone, and red blood cells and enhanced neural conduction (Brooks & Fahey). Other side effects of anabolic steroid use may include alterations in liver function, lipid chemistry, and cardiovascular function (Brooks & Fahey). As well, fluid retention, severe acne, trembling, wild mood swings, paranoid jealousy, extreme irritability, delusions, and impaired judgment may result from steroid use (Bellenir). Bellenir also writes that

adolescent growth is halted prematurely through premature skeletal maturation and accelerated pubertal changes.

Stimulants

Stimulants excite the central nervous system by increasing heart rate, blood pressure, and respiratory rate (Girdano & Girdano, 1976). Effects of stimulant use may include an elevation in mood, an increase in energy and alertness, and a decrease in fatigue and boredom (Carson-DeWitt, 2001a). Minor toxic reactions include dizziness, confusion, nausea, headache, sweating, and mild tremors (Carson-DeWitt). Serious toxic effects can include irregular heartbeats, convulsions and seizures, heart attacks, liver failure, kidney failure, heart failure, respiratory depression, stroke, coma, and death (Carson-DeWitt). Psychiatric abnormalities resulting from chronic central nervous system stimulant abuse can include anxiety, depression, hallucinations, and paranoid psychosis (Carson-DeWitt). Substances within this category include amphetamines, cocaine, crack, and nicotine.

Appendix C

*The Duval Secondary Substance Use and Violence Survey*Directions for Administration of the Secondary Grades Survey**I. Introduction**

The Duval Secondary Substance Use and Violence Survey is a research-based questionnaire concerning student's knowledge, attitudes and behaviors related to alcohol, tobacco, and other drug use, and violence. The survey has been designed to meet the needs of secondary level (i.e., 6-12) students while maintaining standard questions that can be compared across school districts and with state and national norms.

Information from the survey is used to guide the development of education, prevention and intervention programs for children and youth within the school system and throughout the community. *It is important that you encourage you students to take the survey seriously and to answer as honestly and openly as possible.*

II. Preparation Instructions to Survey Administrators

We appreciate your willingness to administer the survey. For the survey to be effective, students ***must*** feel comfortable in responding to all items openly and honestly. We, therefore, ask you to emphasize that all responses are completely anonymous and confidential, and will not in any way be held against the student. Please direct the student's attention to the fact that **the survey does not have a space for a name or any other individual identifying information.**

To assure standardized survey procedures and confidentiality, please adhere to the following survey administration instructions carefully:

- Plan to administer the survey in a single class session.
- Prior to administration, confirm that you have all the materials necessary to administer the survey:

The survey packet should contain:

- One large manila envelope labeled, **Duval Survey/Responses**
- One Batch Control Form
- ATODV Surveys - one survey booklet for each student in your class
- ATODV Survey answer sheets – one answer sheet for each student in your class
- #2 pencils - one for each student (supplied by the school)
- Please complete the Batch Control Form for each class or survey group. (Survey date, approximate administration time, grade level of students, number of surveys passed out, and the school's name). Note, this information is critical to the survey analysis and your name and comments will also be treated as confidential and anonymous information unless you specify otherwise.
- Please review the survey before administering. During the survey administration, feel free to help any student that has a problem reading or understanding how to complete the survey.

It is important that you encourage your students to answer the survey questions honestly. Information from this survey is used to plan programs for children and youth throughout the greater Jacksonville area.

Appendix D

**The Duval County Public Schools Substance Use and Violence Survey
Survey Administrator's Processing Form**

The person administering the survey should complete the following information.

(1) Date ____/____/____

(2) Your school's name: _____

(3) Person administering survey: Name _____

(4) Grade level of students (Circle each that applies):

6th 7th 8th 9th 10th 11th 12th

(5) Time began _____ Am/PM Time ended _____ Am/PM

(6) Number of surveys distributed _____

(7) Number of Completed Answer Forms Returned _____

Post Survey Procedures

- A. Please provide us with any suggestions that might improve the quality of this survey. Please describe any problems or unusual circumstances that might impact the survey results. Use the back of this sheet if needed.

Please INSERT THIS SHEET into the "Response Sheet Envelope" with the student responses and **RETURN** all survey materials to the designated person in your school.

Thank You For Your Assistance!

Revised 7/19/2007

Appendix E

Frequency Distributions of Substances of Low Incidence

Table 1

Student Use of Amphetamines

Extent of Use	Frequency	Percent
Never used in life	21491	88.2
Tried once or twice but do not use regularly	1382	5.7
Used in past 30 days	700	2.9
Use almost every week	289	1.2
Use almost every day	494	2.0
Total	24356	100.0

Table 2

Student Use of Barbiturates

Extent of Use	Frequency	Percent
Never used in life	21880	90.7
Tried once or twice but do not use regularly	999	4.1
Used in past 30 days	516	2.1
Use almost every week	285	1.2
Use almost every day	452	1.9
Total	24132	100.0

Table 3

Student Use of Cocaine, Crack Cocaine

Extent of Use	Frequency	Percent
Never used in life	22226	91.4
Tried once or twice but do not use regularly	894	3.7
Used in past 30 days	467	1.9
Use almost every week	254	1.0
Use almost every day	481	2.0
Total	24322	100.0

Table 4

*Student Use of Hallucinogens i.e. Mescaline, Peyote,
Phencyclidine, Mushrooms*

Extent of Use	Frequency	Percent
Never used in life	21458	90.2
Tried once or twice but do not use regularly	1088	4.6
Used in past 30 days	520	2.2
Use almost every week	246	1.0
Use almost every day	486	2.0
Total	23798	100.0

Table 5

Student Use of Heroin

Extent of Use	Frequency	Percent
Never used in life	22906	94.2
Tried once or twice but do not use regularly	515	2.1
Used in past 30 days	302	1.2
Use almost every week	160	0.7
Use almost every day	428	1.8
Total	24311	100.0

Table 6

Student Use of Ketaminehydrochloride

Extent of Use	Frequency	Percent
Never used in life	22750	93.9
Tried once or twice but do not use regularly	629	2.6
Used in past 30 days	305	1.3
Use almost every week	152	0.6
Use almost every day	389	1.6
Total	24225	100.0

Table 7

Student Use of LSD

Extent of Use	Frequency	Percent
Never used in life	22325	92.1
Tried once or twice but do not use regularly	883	3.6
Used in past 30 days	437	1.8
Use almost every week	204	0.8
Use almost every day	382	1.6
Total	24231	100.0

Table 8

Student Use of Methamphetamines

Extent of Use	Frequency	Percent
Never used in life	22578	93.5
Tried once or twice but do not use regularly	626	2.6
Used in past 30 days	330	1.4
Use almost every week	227	0.9
Use almost every day	385	1.6
Total	24146	100.0

Table 9

Student Use of Narcotics i.e. Oxycontin

Extent of Use	Frequency	Percent
Never used in life	22186	91.5
Tried once or twice but do not use regularly	933	3.8
Used in past 30 days	468	1.9
Use almost every week	226	0.9
Use almost every day	444	1.8
Total	24257	100.0

Table 10

Student Use of Rohypnol

Extent of Use	Frequency	Percent
Never used in life	22778	93.9
Tried once or twice but do not use regularly	550	2.3
Used in past 30 days	344	1.4
Use almost every week	200	0.8
Use almost every day	392	1.6
Total	24264	100.0

Appendix F

Sport/Athletic Participation by Respondent Grade Level

		Sport/Athletic participation				
Grade		None	1-5 hours	6-10 hours	11+ hours	Total
6	Count	1748	1327	616	384	4075
	%	42.9	32.6	15.1	9.4	100.0
7	Count	1492	1119	664	478	3753
	%	39.8	29.8	17.7	12.7	100.0
8	Count	1280	890	626	401	3197
	%	40.0	27.8	19.6	12.5	100.0
9	Count	1925	1109	768	589	4391
	%	43.8	25.3	17.5	13.4	100.0
10	Count	1666	764	607	556	3593
	%	46.4	21.3	16.9	15.5	100.0
11	Count	1430	561	466	414	2871
	%	49.8	19.5	16.2	14.4	100.0
12	Count	1301	399	339	303	2342
	%	55.6	17.0	14.5	12.9	100.0

Note. % = percentage within respondent's grade.

Appendix G

Nonsport Activity Participation by Respondent Grade Level

		Nonsport activity participation				
Grade		None	1-5 hours	6-10 hours	11+ hours	Total
6	Count	1663	1706	457	229	4055
	%	41.0	42.1	11.3	5.6	100.0
7	Count	1561	1470	451	253	3735
	%	41.8	39.4	12.1	6.8	100.0
8	Count	1274	1269	415	234	3192
	%	39.9	39.8	13.0	7.3	100.0
9	Count	1828	1673	557	318	4376
	%	41.8	38.2	12.7	7.3	100.0
10	Count	1413	1434	477	259	3583
	%	39.4	40.0	13.3	7.2	100.0
11	Count	1077	1115	401	268	2861
	%	37.6	39.0	14.0	9.4	100.0
12	Count	904	893	328	206	2331
	%	38.8	38.3	14.1	8.8	100.0

Note. % = percentage within respondent's grade.

Appendix H

Employment by Respondent Grade Level

Grade		Employment				Total
		None	1-5 hours	6-10 hours	11+ hours	
6	Count	3475	452	70	76	4073
	%	85.3	11.1	1.7	1.9	100.0
7	Count	3125	437	109	72	3743
	%	83.5	11.7	2.9	1.9	100.0
8	Count	2572	396	152	67	3187
	%	80.7	12.4	4.8	2.1	100.0
9	Count	3526	410	286	163	4385
	%	80.4	9.4	6.5	3.7	100.0
10	Count	2388	392	463	349	3592
	%	66.5	10.9	12.9	9.7	100.0
11	Count	1369	314	634	545	2862
	%	47.8	11.0	22.2	19.0	100.0
12	Count	798	256	594	692	2340
	%	34.1	10.9	25.4	29.6	100.0

Note. % = percentage within respondent's grade.

Appendix I

Employment with Sport/Athletic Participation

Employment		Sport/Athletic participation				Total
		None	1-5 hours	6-10 hours	11+ hours	
None	Count	2285	886	693	726	4590
	%	49.8	19.3	15.1	15.8	100.0
5-10 hours	Count	402	253	179	138	972
	%	41.4	26.0	18.4	14.2	100.0
11-20 hours	Count	825	321	335	222	1703
	%	48.4	18.8	19.7	13.0	100.0
>20 hours	Count	910	273	211	219	1613
	%	56.4	16.9	13.1	13.6	100.0
Total	Count	4422	1733	1418	1305	8878
	%	49.8	19.5	16.0	14.7	100.0

Note. % = percentage within employment.

Appendix J

Employment with Nonsport Activity Participation

Employment		Nonsport activity participation				Total
		None	1-5 hours	6-10 hours	11+ hours	
None	Count	1814	1819	617	323	4573
	%	39.7	39.8	13.5	7.1	100.0
5-10 hours	Count	295	427	156	90	968
	%	30.5	44.1	16.1	9.3	100.0
11-20 hours	Count	582	716	247	153	1698
	%	34.3	42.2	14.5	9.0	100.0
>20 hours	Count	734	492	193	187	1606
	%	45.7	30.6	12.0	11.6	100.0
Total	Count	3425	3454	1213	753	8845
	%	38.7	39.1	13.7	8.5	100.0

Note. % = percentage within employment.

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Vitae

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