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Out-of-School Time and Adolescent Substance Use

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A B S T R A C T

Purpose: High levels of adolescent substance use are linked to lower academic achievement, reduced schooling, and delinquency. We assess four types of out-of-school time (OST) contexts—unsupervised time with peers, sports, organized activities, and paid employment—in relation to tobacco, alcohol, and marijuana use at the end of high school. Other research has examined these OST contexts in isolation, limiting efforts to disentangle potentially confounded relations.
Methods: Longitudinal data from the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (N = 766) examined associations between different OST contexts during high school and substance use at the end of high school.
Results: Unsupervised time with peers increased the odds of tobacco, alcohol, and marijuana use, whereas sports increased the odds of alcohol use and decreased the odds of marijuana use. Paid employment increased the odds of tobacco and alcohol use. Unsupervised time with peers predicted increased amounts of tobacco, alcohol, and marijuana use, whereas sports predicted decreased amounts of tobacco and marijuana use and increased amounts of alcohol use at the end of high school.
Conclusions: Although unsupervised time with peers, sports, and paid employment were differentially linked to the odds of substance use, only unsupervised time with peers and sports were significantly associated with the amounts of tobacco, alcohol, and marijuana use at the end of high school. These findings underscore the value of considering OST contexts in relation to strategies to promote adolescent health. Reducing unsupervised time with peers and increasing sports participation may have positive impacts on reducing substance use.

IMPLICATIONS AND CONTRIBUTION

This study examines relations between four different out-of-school time contexts and adolescent substance use. When considered in the same analytic model, unsupervised time with peers and sports were the best predictors for substance use, underscoring the potential importance of out-of-school contexts as sources of risk and protection for substance abuse.

For adolescents, drug and alcohol use is related to decreases in motivation and academic achievement, reductions in cognitive processes, and increases in school misbehavior [1]. Furthermore, substance use in adolescence is a strong predictor for subsequent substance abuse, health problems, educational failure, mental health services, and needs for drug and alcohol treatment [2].

The purpose of this article is to examine links between adolescents' out-of-school time (OST) contexts and substance use at the end of high school. Four common OST contexts are considered as follows: (1) unsupervised time with peers; (2) sports; (3) other organized activities such as band, speech, and student government; and (4) paid employment. These OST contexts constitute much of adolescents' discretionary time outside the school day [3]. For the most part, the effects of these contexts on adolescent developmental outcomes have been studied in separate research literature [3].

Unsupervised time with peers has been viewed as a problematic setting that promotes youth deviance [4] including substance use [5–7]. Osgood's extension of Routine Activity Theory [6] posits that unsupervised time with peers places youth at risk for misbehavior and deviant behaviors because of a convergence of three factors, such as the lack of adult

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supervision, the lack of structure, and the presence of peers who may encourage the risky acts [6]. Consistent with Routine Activity Theory, prior empirical research has found unsupervised time with peers to be linked to increased drug and alcohol use [5–7]. This research did not, however, take into account other OST contexts, such as organized activities and paid employment. Perhaps, it is not unsupervised time with peers, per se, but the lack of organized activities that is linked to substance use.

Organized activities, in contrast, is an OST context that theorists [8,9] have identified as promoting positive youth development. Critical aspects of organized activities such as sports, arts, and community service clubs are opportunities for enrichment and challenge, supportive relationships with adult leaders, positive peer networks, and a chance for choice and voice [3]. Empirical research has found participation in community service clubs and sports to be related to higher graduation rates and less alcohol and marijuana use, although effects of sports participation vary in response to peer cultures in the high school [10]. The positive relationships from adults and peers gained in these organized activities may provide protection from the societal pressures of adolescent substance use.

Paid employment is a third out-of-school context that has been posited to have both negative and positive implications [11]. Paid employment has been linked to increased substance use for youth with high work intensity [12–16] but at the same time has also been linked to lower rates of substance use when work quality is high [17]. Paid work may expose adolescents to more adult-like situations for which they are unprepared. For example, adolescents may spend time with older coworkers, increasing the chances of engaging in different substances.

Because prior research has examined OST contexts in separate studies, it has not been possible to disentangle potentially confounding relations. It is not clear, for example, if positive effects of organized activities are an artifact of less unsupervised time with peers or vice versa. Another limitation is that much of the prior research linking OST contexts to substance use has used a simple (yes/no) indicator of substance use instead of looking at amount of substance use [18]. High levels of substance use represent greater risk [19], so both are considered in this article. Finally, prior research has typically measured participation in OST contexts at a single point in time rather than cumulative participation over time [4,6,7,10,12,14,20]. We expect OST participation across the high school years to be a more robust predictor.

In summary, the present article examines the four different OST activities (unsupervised time with peers, sports, organized activities, and paid employment) measured early and late in the high school career in relation to both the odds and amounts of three different types of substance use (tobacco, alcohol, and marijuana), while controlling family and child factors and for prior substance use.

Methods

Participants were part of the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (NICHD SECCYD), a prospective longitudinal study conducted at 10 research sites (Pittsburg, PA; Seattle, WA; Philadelphia, PA; Little Rock, AR; Boston, MA; Lawrence, KS; Chapel Hill, NC; Charlottesville, VA; Madison, WI; and Irvine, CA) across the United States. Children (n = 1,352) were studied from birth

until the end of high school. At birth, 26% of the mothers in the recruited sample had no more than a high school education at recruitment, 20% had incomes not greater than 200% of the poverty level, and 22% were of color [21].

The present study focuses on four OST contexts and substance use. These were measured at age 15 and the end of high school and substance use at age 15 (n = 955) and at the end of high school (n = 766). Because the analyses are based on secondary analysis of deidentified data, it was considered exempt from human subjects' consideration from the institutional review board.

Measures

Measures of the OST contexts at 15 years and end of high school are presented first, followed by measures of substance use collected at 15 years and end of high school. Variables used as covariates are then described.

Out-of-school time contexts
Unsupervised time with peers. At age 15 and at the end of high school, adolescents reported how many weekdays and how many weekend hours they spend at least 30 minutes in the afternoon or evening after school with other kids such as friends or neighbors, not including brothers or sisters, without an adult. The scores for weekdays ranged from 0 to 5 weekdays and weekend hours ranged from 0 to 8 hours. At the two ages, the unsupervised time with peers variable was constructed by averaging the standardized value of weekdays and weekend hours at age 15 and end of high school. Values at these two time points were then averaged to create the average intensity of unsupervised time with peers during high school. Higher values indicate more unsupervised time with peers.

Sports participation. At age 15 and end of high school, adolescents reported the number of days of sports-related activities during a typical week, ranging from 0 to 7 days. Participation at age 15 and at the end of high school was averaged.

Other organized activities. Adolescents also reported participation in each of the five other forms of organized activities during the past year as follows: (1) arts (music, dance, drama, or art); (2) academic clubs (Spanish, computer, etc); (3) nonacademic clubs or groups; (4) religious groups; and (5) volunteer or community service work. For these activities, adolescents indicated the number of days of participation during a typical week, ranging 0 to 7 days. Participation was calculated by taking the sum of all nonsports activities participated by subjects, ranging from 0 to a possible 7 days of participation. Participation at age 15 and at the end of high school was averaged to create a composite of structured activity participation throughout adolescence.

Paid employment. Adolescents reported whether they had a paying job at age 15 and at the end of high school. If an adolescent reported having a paying job during the school year, he or she also indicated the number of hours per week typically worked using five categories (more than 20 hours, 16–20 hours, 11–15 hours, 6–10 hours, and 1–5 hours). If adolescents reported that they were not employed, work hours per week were coded as 0 hours. If participants indicated that they worked during the school year, the work hours per week was coded as the midpoint of each categorical variable. Values at age 15 and at the end of