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This study examined associations between participation in voluntary out-of-school programs (e.g., scouting, Boys' and Girls' Clubs, 4-H, YMCA/YWCA) in adolescence and four negative outcomes: school dropout, early sexual activity, delinquency, and drug use. A prospective longitudinal design had collected four waves of interview data on a national sample of 15,000 individuals beginning at age 14 and ending at age 20 (National Educational Longitudinal Study). The analysis found that overall participation through childhood and adolescence was linked to substantially lower levels of all four negative outcomes. However, the associations depended on the developmental timing of the participation and the ecological location of the program.

Adolescent Out-of-School Programs and Negative Outcomes:

A Longitudinal Analysis

by

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Acknowledgement

Table of Contents

List of Tables

Adolescent Out-of-School Programs and Negative Outcomes: A Longitudinal Analysis

Introduction

There is considerable interest in reducing negative outcomes for adolescents

including substance abuse, delinquency, violence, sexual behavior, school failure, and

dropout (Dryfoos, 1990; Lerner & Galambos, 1998). Several approaches emphasize early

prevention or intervention to reduce these behaviors. One widely used strategy focuses on

participation in group activities during the after-school hours (McLaughlin, Irby, &

Langman, 1994; U.S. Department of Education, 1998). These programs are of particular

interest because they are based on enhancing developmental status as a mechanism for

preventing negative outcomes in the future. There have been few long-term evaluations

of these programs. Using nationally-representative longitudinal data, this study assesses

the effectiveness of center-based youth programs for early adolescents in reducing four

negative outcomes in young adulthood: substance use, early sexual experience, being

arrested, and dropping out of school.

Researchers have found several common predictors of these negative outcomes

(Dryfoos, 1990; Hamburg, 1992; Lerner & Galambos, 1998). Lowered expectations for

education and school grades, general behavioral problems, negative peer influence,

parental roles, and living in a high-poverty urban neighborhood have been found to

contribute to all four classes of negative outcomes (Hamburg, 1992). Several other

variables, such as gender, race, family status, and rare church attendance have been found

to affect more than one, but not all, negative outcomes (Dryfoos, 1990). The number of common antecedents for the four general types of negative outcomes suggests that these outcomes may be different manifestations of the same underlying pattern of developmental stress and maladjustment. However, traditional prevention and intervention programs have focused on only one type of negative outcome at a time. Dropout prevention programs, substance abuse education programs, abstinence-based education, and gang intervention programs have been established to combat one specific negative outcome behavior (Dryfoos, 1990). An alternative to this approach is to focus on developmental issues that are common to all these specific negative outcomes.

Research in the youth development field has shown that the components of successful prevention programs are similar, regardless of the specific negative behaviors they were designed to address (Carnegie Council on Adolescent Development, 1995; Dryfoos, 1990; McLaughlin, Irby, & Langman, 1994). These components have been labeled competencies (Pittman & Wright, 1991), developmental assets (Search Institute, 1993), or life skills (Carnegie Council on Youth Development, 1995). Regardless of the label, research in youth development suggests that links among negative outcomes point toward designing prevention programs that focus on the common antecedents of negative behaviors rather than the behaviors themselves. Based on this research, youth programs are now seen as vehicles that can help youth develop the skills, competencies, and assets necessary to avoid negative behaviors altogether (Carnegie Council on Youth Development, 1995). The notion that negative youth behaviors can be reduced by general youth development programming has reached the highest levels of policymaking (U.S. Department of Education, 1998), but there is, as yet, little longitudinal evidence of the

effects (Allen, et al., 1998). The present analysis has three goals. First we use a large national sample ($\underline{n}$ = 15,000) to test whether participation in youth programs in childhood and adolescence reduces the occurrence of four negative outcomes by early adulthood. Secondly, we test whether the developmental timing of the participation determines the strengths of the effects. Finally, we test whether the ecological location of participation influences the nature of the effects. Specifically, we focus on differences between after-school programs and non-after-school programs.

Why Out-of-School Programs Should Prevent Negative Outcomes

One problem in assessing effects of youth development programming has been a conceptual gap between immediate program effects and the long-term reduction of negative behavior. Recent work in informal social control theory (Sampson & Laub, 1994) can close that gap. The negative behaviors of primary interest all result from a lack of informal social control. Substance abuse, crime, violence, inappropriate sexual behavior, and school dropout all occur, in part, because the individual has not internalized restraints that regulate the behavior of most people. Informal social control refers to constraints on individual behavior based on interpersonal relationships. An individual constrains their behavior because of bonds of affection and/or respect for other individuals. The classic example is the parent-child relationship (Sampson & Laub, 1994; Gottfredson & Hirschi, 1990). In the simplest case the child follows the parent's rule because the child has affection and respect for the parent. This contrasts with formal social control which emphasizes the enforcement of rules by threats of negative consequences for violations. Out-of–school programs include elements of informal social

control because they entail responsible participation with adults and peers. Therefore, programs that promote informal social control should inhibit future negative outcomes.

Literature from the youth development field provides many examples of successful programs that have demonstrated effectiveness at lowering at-risk behavior in the short term (Carnegie Corporation of New York, 1992; Carnegie Council on Youth Development, 1995; Dryfoos, 1990; Hamburg, 1992; Person, et al., 1998; Pittman, 1991). Most of these programs share the common goal of establishing informal social control with youth. McLaughlin, Irby, & Langman (1994), for example, focus the report of their research on the adults that work with youth. Their results imply that the presence of caring adults in youth programs often makes the difference between success and failure. Furthermore, many "successful" programs are often targeted at youth from low-income families, suggesting that youth experiencing poverty are seeking informal social control outside of the family context.

Informal social control theory has been adapted to community-based youth programs with two theoretical perspectives. Lerner (1995) promotes the notion of developmental contextualism, in which individuals have a reciprocal relationship with their environment. He theorizes that successful programs also build individuality in youth, enabling them to develop the skills necessary to positively change both themselves and their environments (p. 31). This is similar to the effect that informal social control has on youth within families, according to Sampson and Laub (1994). The youth development perspective, as illustrated by Pittman and Wright (1991), also expands the notion of informal social control to the realm of the community. Pittman and Wright use a dual continuum of needs and competencies to graphically illustrate the impact that

youth programs and specifically, adult agents, can have on youth development. Agents that provide negative needs and/or competencies can be classified as ineffective, damaging, diversionary, or destructive. The youth development perspective has provided the framework that many successful youth programs use today (Allen, et al., 1998; Carnegie Council on Adolescent Development, 1995; McLaughlin, Irby, & Langman 1994; Pittman & Wright, 1991; U.S. Department of Education, 1998).

The Developmental Timing of Out-of-School Programs

Researchers and policymakers agree that the period of early adolescence is one of the most crucial developmental stages in which to provide programming (Carnegie Council on Adolescent Development, 1995). For example, in a discussion on teenage pregnancy, Hamburg (1992) stated, "The consequences of pregnancy for an eighteen- or nineteen-year-old are very different from the consequences of someone still of school age. . . . Therefore, a focus on early-adolescent pregnancy – as well as other early-adolescent problems – is crucial" (p.188, emphasis included).

The products of informal social control are directly related to moral development. There is empirical evidence that most people move from Kohlberg's stage 2 of pre-conventional morality to stage 3 of conventional morality sometime during early or middle adolescence, age 12 to 15 years (Schaffer, 1996, p. 297). Because of the phasing of moral development during early adolescence, it is important that programming for this age group focus on promoting that development. Moral development requires appropriate input from the environment at the appropriate time. Early adolescence is a crucial time for providing opportunities that encourage moral development. Youth who do not

progress morally should be more at risk for negative outcome behavior later on in adolescence and adulthood. The timing issue suggests that intervention in early adolescence is developmentally critical for long-term outcomes. To test for this difference, this analysis compares effects of early adolescent participation with later participation in youth development programs.

The Ecology of Out-of-School Programs

Because of the current school structure in the United States, up to 40% of a young adolescent's waking hours are spent choosing how to spend their time (discretionary time). Often, this time is spent without adult supervision (Carnegie Corporation of New York, 1992). Because more parents are working, many youth are unsupervised between the hours of 3:00 p.m. and 6:00 p.m. Due to the increasing frequency of negative behaviors among adolescents, after-school programs for young adolescents are being promoted as the most effective way to address these problems. Youth programs that mainly operate outside of the after-school period (i.e.,evenings and weekends) can also have positive impacts on youth. However, because they tend to occur during times when parents are typically available for supervision, these programs are not as crucial to lowering negative behaviors. From an ecological standpoint, it is especially important to provide effective programs for adolescents after school (Lipsitz, 1986).

Short-term evaluation of after-school programs has been overwhelmingly positive. Evaluation in this area consistently focuses on the qualitative aspects of each program, compiling a list of specific strategies that each program employs (McLaughlin, Irby, & Langman, 1994) or presenting positive quotes from participants, parents, and

staff members (Americans for the Arts, 1999). Quantitative data do exist for many programs, but are often limited by small population sizes, cross-sectional or short-term longitudinal data, and non-scientific reporting methods. Furthermore, presentations of findings are seldom found in usable scientific formats. When quantitative studies have been methodologically sound, they do not always find significantly positive effects of these programs (Allen, et al., 1997). Long-term longitudinal evaluations of after-school programs have not been conducted.

This study provides a longitudinal evaluation of youth development programs. Using a nationally representative data set, this study will test three basic hypotheses. First, participation in organized activities outside of school should be associated with fewer negative outcomes. The following negative outcomes will be used for this analysis: early sexual activity, arrest, alcohol and marijuana use, and school dropout. This hypothesis will consider the effects of overall program participation from kindergarten through the twelfth grade. The second hypothesis focuses on the importance of programs in early adolescence in comparison with participation in tenth through twelfth grades. Participation in these activities in late adolescence will not provide additional benefits beyond early adolescent participation for reducing negative outcomes. The third hypothesis considers the ecological importance of the after-school time period. Participation in non-after-school programs will not provide additional benefits to participation in after-school programs.

Method

<u>Analysis Plan</u>

Multiple regression methods were used to test the three hypotheses. To provide

statistical control of some factors that might contribute to the four negative outcomes, a

set of control variables was used in all regressions. These were school grades, socio-

economic status, gender, and ethnicity. Each hypothesis was tested with four separate

regressions. The dependent variables in the four regressions were year of first sex, drug

use, "arrest" (includes respondent and a close friend), and dropout. Because arrest and

dropout were dichotomous variables, logistic regression was used for them. Ordinary

least squares (OLS) regression was used for drug use and early sex.

The first hypothesis was tested by four regressions that included the level of out-

of-school participation and the control variables. The second hypothesis tested whether

the regression model that measured both early and late participation was significantly

better than a model without late participation. For the OLS regressions, an F-test for

change in R-square was used. In the logistic regression, a chi-square for improved fit was

used. The third hypothesis was also tested with two OLS regressions and two logistic

regressions comparing the effects of programs that traditionally meet after school to those

meeting at other times.

<u>Subjects</u>

This analysis was conducted using data from the National Educational Longitudinal Study of 1988 through 1994 (NELS:88). Data were collected by the National Center for Education Statistics. A clustered, stratified national probability sample of 1,052 schools was chosen from the 40,000 public and private schools in the United States that had eighth grade students in 1988. From that sample of schools, 24 students were randomly selected from each school. Students were then grouped by race/ethnicity, and an additional two or three Hispanic or Asian students were added from each school. Subjects were surveyed for baseline data in 1988. Data were gathered using questionnaires for the first three waves. Because most subjects had graduated from high school in the third follow-up, it was no longer possible to use the survey method from the first three waves. Instead, subjects were interviewed one on one in the form of computer-assisted telephone interviews.

All subjects were enrolled in the eighth grade at the time of the baseline survey. Follow-up surveys were conducted in two-year intervals. Approximately 25,000 students were initially surveyed and followed-up twice. The third follow-up in 1994 included 15,000 of the original 25,000 respondents because of financial limitations. Stratified sampling techniques were again employed to insure that the 15,000 sample was a random sample of the original. Data from the 15,000 respondents of the third follow-up were used for this analysis. This analysis also draws on survey data from parents in the baseline year. In order to compensate for unequal probabilities of selection and to adjust for the effects of non-response, weighted variables included in the data set were used for this analysis. Furthermore, because this data set is not a truly random sample, design effects

measuring the impact of that departure were calculated (Haggerty, et al., 1996). Design effects are incorporated into this analysis as recommended by Haggerty, et al. (p. 5-25).

Basic descriptors for the youth in this sample are as follows (see Table 1): 51% of the sample was female. 68% was white, 14% of the sample was Hispanic, 11% Black, 7% Asian, and 1% Native American. 64% of the sample population was born in 1974, 30% in 1973, 6% in 1972 or before, and 1% in 1975 or later. Respondents reported receiving mostly Bs in school (M = 2.94, SD = .75). 22% of youth in this sample reported that they or a close friend had been arrested, and 19% had ever dropped out of school. The mean year for first sex was 1992 (SD = 5.41), and the mean score on the drug use scale was 2.44 (SD = 1.64).

Data

Predictor Variables

Using survey data from all four waves of NELS:88 plus baseline interviews with parents, a complete history of involvement with community-based programs ranging from early childhood through late adolescence was developed to serve as predictor variables.

Pre-eighth grade program participation. Parents were asked if their eighth grader had ever been involved in several non-school activities since the first grade. These activities included Boy or Girl Scouts, Cub Scouts or Brownies, Campfire or Bluebirds, Boys' and Girls' Clubs, religious groups, YMCA, YWCA, Jewish Community Center, Little League or other sports teams, 4-H, and other community groups. Answers for each

Table 1
Descriptive Statistics.

Variable	M	SD	n
Baseline Participation	2.02	1.83	12755
Parent Data[a]	2.40	1.60	12691
Gender	.51	.50	13822
Grades[b]	2.94	.75	13678
SES	-.13	.79	13820
Drug Use	2.44	1.64	11927
Arrest	.22	.42	14784
Year of First Sex	1992.53	5.41	13549
Dropped Out	.19	.39	14915
Asian or Pacific Islander	.07	.25	13682
Hispanic	.14	.34	13682
Black	.11	.31	13682
Native American	.01	.11	13682
White	.68	.47	13682

[a]Parents were asked how many out-of-school activities their children participated in before eighth grade. [b]Self reported.

were <u>yes</u> or <u>no</u>. For purposes of this analysis, the values were set at <u>no</u> = 0 and <u>yes</u> = 1. Answers were added together for each student, resulting in a scale from 0 to 9 ($\underline{M}$ = 2.40, $\underline{SD}$ = 1.60). These scores were then standardized, resulting in a z-score for each student. All missing values were ignored for all variables in this analysis.

<u>Eighth grade program participation.</u> Students in the baseline wave were asked if they had participated in several outside-school activities in the current school year. They were asked to respond <u>no</u>, <u>as a member</u>, or <u>as an officer</u>. Activities included scouting, religious youth groups, hobby clubs, neighborhood clubs or programs, Boys' Clubs or Girls' Clubs, non-school team sports, 4-H, Y or other youth groups, summer programs, and other. The data were re-coded into a dichotomous variable by setting <u>no</u> = 0, <u>as a member</u> = 1, and <u>as an officer</u> = 1. Each variable was added up, again resulting in a score for each student from 0 to 9 ($\underline{M}$ = 2.02, $\underline{SD}$ = 1.83). These scores were also standardized into z-scores.

<u>Later program participation.</u> Respondents in the first and second follow-up waves were asked how often they spent time attending youth groups or recreational programs. Possible responses were <u>rarely or never</u>, <u>less than once a week</u>, <u>once or twice a week</u>, and <u>every day or almost every day</u>. Data were transformed to a 0 to 3 scale and standardized as above.

For the final analyses, the standardized data were sorted into five individual composite variables. An overall participation variable was constructed by adding the standardized scores from parent data, baseline, and the follow-up waves. This variable was used for the regressions in the first hypothesis. For the second hypothesis, two separate predictor variables were used. The early participation variable was constructed

by adding the standardized parent and baseline data together, and the late participation variable was the result of summing the standardized participation scores from the first and second follow-up waves. Similarly, standardized scores for after-school and non-after-school participation were separated and summed to compute the variables for the logistic regression trials used for the third hypothesis. In each of these variables, a higher number corresponds to more participation.

For the analysis of after-school programs, predictor variables were used only from the baseline (eighth grade) student interviews. Once again, two composite variables were constructed, one representing traditionally after-school programs and the other made up of non-after-school programs. Neighborhood clubs or programs, Boys' Clubs or Girls' Clubs, non-school team sports, and Y or other youth groups were considered after-school programs for this analysis. The non-after-school program group included scouting, religious youth groups, hobby clubs, 4-H, and summer programs. The variable for "other" youth groups was excluded, as it is impossible to determine what each respondent defined as other.

Control Variables

In order to take into account factors that have previously been linked to negative outcomes (Dryfoos, 1990), four additional variables were chosen as controls for this analysis. All controls are from the baseline year, as this analysis is most concerned with how circumstances in early adolescence affect future outcomes. Socio-economic status is defined by a composite variable made up of five other variables to make it a more accurate measure. It was compiled from father's education level, mother's education

level, father's occupation, mother's occupation, and family income in the baseline year. The greater the number, the higher the SES of the respondent. A composite variable for gender that assigned one to every member of the sample was used. For those who did not answer the question, the gender marked on the school roster was assigned. If a value was still missing, it was imputed from the respondent's name. Any remaining missing responses were randomly assigned male = 0 or female = 1 (NCES, 1998). To control for student grades, a composite variable of self-reports for grades over four subject areas was used. The subject areas included English, mathematics, science, and social studies. Grades from all non-missing areas were equally weighted and averaged. A five-point scale was used: mostly As = 4, Bs = 3, Cs = 2, Ds = 1, and mostly below D = .5. The mean was rounded to one decimal place for each student.

The final control variable was race. The assigned categories included Asian or Pacific Islander; Hispanic, regardless of race; Black, not of Hispanic origin; White, not of Hispanic origin; and American Indian or Alaskan Native. Because race is not a continuous variable, a separate dichotomous variable was created for each category with no = 0 and yes = 1. The final regressions used the White variable as a reference, so numbers for it are not included in tables. It is important to note that if respondents marked more than one category, they were included in the "missing" category. Therefore, this sample excludes respondents who identify with more than one racial category.

Outcome Variables

For this analysis, outcome variables were chosen to cover the four types of negative behaviors discussed above. Data for school failure and delinquency were

measured dichotomously, and data on sexual activity and substance use were measured on a continuous scale.

Dropout status was collected in the third follow-up for all respondents. Transcript and questionnaire data were used to determine if a respondent had ever dropped out of school, regardless of whether they ever returned. For the delinquency measure, an interview question administered in the third follow-up was used. Respondents were asked if they or a close friend had ever been arrested or incarcerated. Respondents were informed that the question was voluntary and did not have to be answered. Even though this is not an ideal variable, as it includes information about a close friend as well as the respondent, the arrest record of a close friend may affect the delinquency of the respondent, as having friends who engage in problem behaviors is an antecedent of negative outcomes (Hamburg, 1992), as discussed above.

The variable for early sexual activity was measured in the third follow-up. Respondents were asked to tell the interviewer when they first had sexual intercourse. They were reminded of the confidentiality of the results and were probed if they did not remember the year. Respondents who had not had intercourse at the time of the interview were coded as 0. In order to scale the results correctly, answers of 0 were re-coded to 2003, and two-digit year designations were converted to four-digit designations. The year 2003 was used as the zero point for this analysis because 99% of the sample was born by 1974, and a 1995 survey conducted by the National Center for Health Statistics showed that by age 29, 95.9% of women had sexual intercourse (Abma, et al., 1997). To measure substance use, a composite variable was formed from two questions in the second follow-up survey. Respondents were asked on how many occasions they had alcoholic beverages

to drink in their lifetime. In a separate question, respondents were asked on how many occasions had they used marijuana (grass, pot) or hashish in their lifetime. Responses for each question were scored 0 = 0 occasions, 1 = 1-2 occasions, 2 = 3-19 occasions, and 3 = 20 or more occasions. The two scores were combined to give a composite score of 0 to 6. These increments give typical levels of drug use ranging from no use to heavy use.

Results

The results of this analysis showed that there was a significant relationship between out-of-school activities and at-risk behavior among youth over time. Hierarchical regressions showed that, in general, participation in out-of-school activities after the eighth grade significantly reduced all four at-risk behaviors in youth (see Table 2). Participation in activities before or during the eighth grade, however, significantly increased at-risk behavior. Furthermore, participation in non-after-school activities significantly lowered all at-risk behavior, but after-school activities increased all at-risk behaviors except being arrested. Taken together, only the first hypothesis can be supported by this analysis. Data for the second and third hypotheses were not supportive.

The first hypothesis tested whether community-based programs are associated with fewer negative outcomes. Indeed, data from this analysis show that total participation in out-of-school activities from childhood through adolescence reduced the chances that youth would be arrested or have friends that were arrested, drop out of school, have sexual intercourse at a younger age, or use marijuana or alcohol. Having a one-standard-deviation higher level of participation reduced the odds of arrest by 22% and the odds of dropping out by 79%. One-standard-deviation higher participation scores

Table 2

Regression Coefficients for Associations Between Total Participation in Out-of-School
Activities and Negative Outcomes[a].

| | Logistic Regression | | OLS Regression | |
Outcome Variables	Odds Ratio	Cox & Snell R^2	B	R^2
Arrest[b]	.78*	.05	--	--
Dropout	.21*	.27	--	--
Early Sexual Intercourse[c]	--	--	.90*	.13
Substance Use[d]	--	--	-.20*	.07

[a] Coefficients for the effects of control variables are not shown here. Their values are
comparable to the control variable coefficients shown in Tables 2 and 3. [b]Respondents
were asked if they or a close friend had ever been arrested. [c]Respondents were asked for
the year of their first sexual intercourse. [d]Respondents were asked how many times they
had tried alcohol and marijuana in their lifetimes.
*$p > .001$.

were associated with an 11-month delay ($B = 0.90$, $p < 0.01$) in first sexual experience

and less drug use. However, the drug use effect was relatively small ($B = -0.20$, $p <$

0.01).

Table 3 shows the regressions that compare the effects of early and late

participation on the four negative outcomes. These effects indicate that late participation

was linked with fewer negative outcomes, in addition to any effects of early participation.

This disconfirmed the second hypothesis. The beneficial effects of late participation were

in marked contrast to the unexpected effects of early participation. One-standard-

deviation higher scores on early participation were associated with 11% greater odds of

Table 3

Hierarchical Regressions[a] Comparing the Effects of Early and Late Adolescent Participation in Out-of-School Activities on Dropout, Arrest, Early Sex and Substance Use by Age 20.

Variable	Logistic Regressions		OLS Regressions	
	Dropout[b]	Arrest[b]	Early Sex[c]	Substance Use[c]
Early Participation	1.11**	1.27**	-.42**	.17**
Late Participation	.03**	.49**	1.99**	-.62**
Hierarchical Test[d]	372440.59**	33848.84**	61497.21**	50520.67**
Control Variables				
Gender	.99*	.44**	1.26**	-.32**
Asian	.78**	.76**	2.27**	-.52**
Hispanic	1.04**	1.16**	.68**	-.18**
Black	1.61**	1.27**	-1.60**	-.78**
Native American	2.38**	1.04*	-.15**	-.16**
SES	.60**	1.02**	.63**	.12**
Grades	.44**	.80**	1.19**	-.37**

[a]Results are from the third regression block. [b]Odds ratios. [c]OLS regression coefficients. [d]Test of whether participation in later adolescence significantly improves on the regression model that includes only all other predictors. For the OLS regressions this is an F test. For the logistic regressions this is a chi-square test.

Note. R^2 = .13 for Early Sex; R^2 = .09 for Substance Use; Cox & Snell R^2 = .05 for Arrest. Cox & Snell R^2 = .23 for Dropout.

*p > .02. **p > .001.

dropping out, 27% greater odds of being arrested, five months earlier first sex ($\underline{B}$ = -0.42, $\underline{p}$ < 0.01), and more substance abuse ($\underline{B}$ = 0.17, $\underline{p}$ < 0.01).

Table 4 shows a similar pattern in comparing the effects of after-school and non-after-school programs in the eighth grade. Participation in non-after-school programs had significant beneficial effects beyond the effects of after-school programs. This disconfirmed the third hypothesis. One-standard-deviation higher participation scores in non-after-school programs were associated with a reduction of 5% in the odds of dropping out, a reduction of 2% in the odds of arrest, a 4.7-month delay in first sex, and marginally lower drug use ($\underline{B}$ = -0.10, $\underline{p}$ < .001). These effects were modest compared with overall early participation effects. Participation in after-school programs had marginal effects on odds of arrest and substance abuse. But one-standard-deviation higher after-school participation scores were linked to 13% higher odds of dropping out and first sex six months earlier. Both these effects were contrary to expectation.

The effects of the control variables for this analysis were mostly significant. Higher grades significantly reduced all four negative outcomes in both regressions. Hispanic, Black, and Native American youth were more likely to dropout and be arrested. However, Asian youth were much lower on all negative outcomes. All boys and Black youth were more likely to have sex more than a year earlier per standard-deviation.

Table 4

Hierarchical Regressions Comparing the Effects of After-School and Non-After-School Participation in the Eighth Grade on Dropout, Arrest, Early Sex and Substance Use by Age 20.

Variable	Logistic Regressions		OLS Regressions	
	Dropout[b]	Arrest[b]	Early Sex[c]	Substance Use[c]
After-School	1.13*	.99*	-.50*	.06*
Non-After-School	.95*	.98*	.39*	-.10*
Hierarchical Test[d]	768.37*	87.01*	11972.64*	7476.63*
Control Variables				
Gender	1.09*	.44*	1.03*	-.32*
Asian	.74*	.71*	2.20*	-.52*
Hispanic	1.07*	1.08*	72*	-.19*
Black	1.35*	1.31*	-1.27*	-.76*
Native American	1.77*	1.08*	.29*	-.11*
SES	.45*	.95*	.80*	.10*
Grades	.31*	.72*	1.57*	-.41*

[a]Results are from the third regression block. [b]Odds ratios. [c]OLS regression coefficients. [d]Test of whether non-after-school participation significantly improves on the regression model that includes only all other predictors. For the OLS regressions this is an F test. For the logistic regressions this is a Chi-square test.

Note. R^2 = .13 for Early Sex; R^2 = .07 for Substance Use; Cox & Snell R^2 = .05 for Arrest; Cox & Snell R^2 = .18 for Dropout.

*$p > .001$.

Discussion

This study has two main findings. First, more participation in organized out-of-school programs through childhood and adolescence was associated with lower levels of arrest (or having a friend who had been arrested), dropping out of school, early sex, and drug use. These results support the principle that such programs enhance the developmental status of individuals in domains related to informal social control. These findings are especially pertinent because of the large national probability sample and the prospective longitudinal design. No previous study has examined program effects with such a large sample with this type of design.

The second main finding was that the effect of out-of-school programs depends on their developmental timing and their ecological location (Bronfenbrenner, 1979). Later program participation and programs not offered immediately after school were linked to the lowest levels of the four negative outcomes. These results disconfirmed the second and third hypotheses in this study that predicted the maximum benefits would be found for after-school programs at about 14 years of age. What is perhaps of more concern were the findings that early participation and participation in after-school programs at age 14 were associated with slightly higher levels of some negative outcomes. These effects were unexpected. However, they are consistent with the idea that long-term program effects depend on timing and ecology.

The strength of the later participation effects suggests it may be more important to focus on the issues of sex, substance use, school dropout, and delinquency when they are an immediate temptation to youth. Many programs for older adolescents are specifically designed to reduce negative outcomes when they are more likely to occur (McLaughlin,

Irby, & Langman, 1994). The timing of a program during the high-risk period may take advantage of a "teachable moment" that allows for more optimal impact. This would not necessarily imply that earlier participation had no developmental effects. Enhanced developmental status through age 14 may not be sufficient alone to protect an individual from engagement in risky behaviors.

Because regression measures the population that is participating in out-of-school programs, it is also implicitly measuring the population that is not participating in these programs. The unexpected results for the second hypothesis may also be explained by the population of youth that is not participating in out-of-school programs at age 14 or earlier. It is possible that the alternative to out-of-school activities provided more protective factors from negative outcomes.

The absence of beneficial effects for after-school programs could be due to several factors. Because of their nature, after-school programs may not foster the kind of long-term relationships that are more typical in weekend or evening programs. Indeed, many after-school programs provide basic supervision but few focused activities that promote individual development. Such programs may also increase contacts with deviant peers. Rodkin, et al. (2000) reported that antisocial youth are often among the most popular and influential in their classrooms. Increased contacts with these peers may increase negative outcomes in other youth. In addition, greater after-school participation may reflect a lower level of parental supervision and involvement. Parental involvement may be more predictive of developmental growth than such program participation. It is also possible that programs and activities designed for younger youth have not used strategies suggested by Pittman and Wright (1991) and others to reduce negative

outcomes. Results of this analysis were collected for youth who were participating in programs designed before the writings of Dryfoos (1990) and others.

In any event, these findings raise a concern about the outcomes of programs designed for early adolescents and younger children. When studied from a longitudinal perspective, programs designed for older adolescents prove to be more effective than programs designed for younger adolescents. As suggested by many researchers (Carnegie Council on Youth Development, 1995; Lerner, 1995; Lipsitz, 1986), this situation must improve soon.

One limitation of the after-school analysis was that programs had to be divided into traditional categories of those offered after school and those offered at other times. Although this provided a reasonable distinction in most cases, it would be better to have a specific measure that precisely identified whether or not the program was offered after school. This limit prevents our after-school findings from being conclusive. However, those results should encourage a closer look at long-term effects of after-school programs. Isolating substantially different effects of after-school programs compared with programs in other ecological settings could have an impact on future programming efforts.

Taken together, the results of this analysis reinforce the suggestion by many researchers that out-of-school activities can have a positive effect on youth. These suggestions provide many directions for future research. Longitudinal analyses are needed to dissect the disturbing difference found here between programs offered to children and young adolescents and those offered to older adolescents. Future analyses should also be designed to effectively measure the differences between after-school and

non-after-school programs. The present analysis provided much-needed longitudinal evidence that out-of-school activities for adolescents can reduce negative outcomes. However, it made equally clear that long-term success depends on developmental timing and ecological location.

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Appendix Table 1
<u>Intercorrelations Among Predictor, Control, and Outcome Variables[a]</u>

Subscale	1	2	3	4	5	6	7	8	9
1. Overall	--	.74**	.71**	.28**	.36**	.15**	-.01**	.33**	.31**
2. Early		--	.20**	.35**	.41**	.02*	.04**	.26**	.17**
3. Late			--	.16**	.22**	.17**	-.10**	.19**	.23**
4. After-School				--	.44**	-.06**	-.002	.04**	.05**
5. Non-After-School					--	.06**	-.08**	.11**	.10**
6. Year of First Sex						--	-.36**	.18**	.26**
7. Drug Use							--	.05**	-.13**
8. SES								--	.32**
9. Grades									--

[a]Only non-dichotomous variables were used.
*p > .05. **p > .01.