

Participation in Extracurricular Activities and Adolescent Adjustment: Cross-Sectional and Longitudinal Findings

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Received August 13, 2003; revised August 6, 2004; accepted October 28, 2004

This study extends previous understanding of the association between adolescent extracurricular activity participation and adjustment by asking whether participation in school-based extracurricular activities is associated with lower substance use and depression, higher grades and academic aspirations, and more positive attitude toward school. In addition, it examines the role of life events stress and time spent in activities as potential moderators of the association. Data come from an ethnically diverse sample of adolescents from 6 California highschools ($N = 3,761$). Cross-sectional results suggest participation is associated with more positive adolescent outcomes for all variables except alcohol use and depression, controlling for gender, ethnicity, and grade. Longitudinal analyses are consistent with these findings. Cumulative participation over a 3-year period predicts adolescent outcomes controlling for both Time 1 outcomes and demographic characteristics. In addition, within-person analyses reveal year-to-year covariation of participation and positive outcomes.

KEY WORDS: extracurricular activities; leisure; adjustment; academic achievement; delinquency.

During the last several years, developmentalists have paid increased attention to adolescents' use of leisure. Leisure is an important context for adolescent development in that it provides opportunities for youth to select and manage their own experiences by exerting personal control over their environments and becoming autonomous in their actions (Silbereisen and Eyferth, 1986). At the same time, leisure can foster the development of cooperation and establish important social negotiation skills within the peer group. It thus allows adolescents important opportunities for both differentiation and integration. The relative control adolescents exert over leisure settings allows greater freedom to experiment with social roles, behaviors, and ideas than many other developmental contexts. This experimentation is essential for healthy development, but can also include behaviors that might be developmentally maladaptive. For example, drinking, illegal drug use, delinquency, and sexual experimentation can

be considered leisure pursuits and often occur within the context of unstructured social leisure settings (Caldwell and Darling, 1999; Mahoney and Stattin, 2000). Leisure contexts are thus interesting from a developmental perspective in that they can provide adolescents with rich, developmentally facilitative interactions with their social and physical environments but can also provide them with the opportunity to engage in activities that can undermine positive development.

School-based extracurricular activities provide adolescents with a highly structured leisure environment, in which adolescents can exert control and express their identity through choice of activity and actions within the setting, but which do not normally facilitate experimentation with roles and activities that are not sanctioned by adults. Mahoney and Stattin (2000) characterize highly structured activities as including "regular participation schedules, rule-guided engagement, direction by one or more adult activity leaders, an emphasis on skill development that is continually increasing in complexity and challenge, activity performance that requires sustained active attention, and clear performance feedback" (p. 114–115). In addition to their potential for direct influence on adolescent developmental processes, participation in extracurricular

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activities—particularly those that are school-based—may also change the nature of adolescents' social relationships. In particular, because organized activities structure adolescents' time (Osgood *et al.*, 1996), they may facilitate parental monitoring. Selective participation of relatively well-functioning youth into school-based activities may also help to shape the prevalence of deviance within adolescents' peer networks, a result consistent with findings that peer characteristics are important moderators of the association between adolescents' use of leisure and deviance (Caldwell and Darling, 1999; Eccles and Barber, 1999; Mahoney, 2000). Extracurricular activities are also one of the few contexts in which adolescents regularly come in contact with unrelated adults outside of the classroom (for review, see Darling *et al.*, 2003).

Recent studies have documented the association of participation in school-based extracurricular activities with higher levels of academic commitment and better academic performance (Cooper *et al.*, 1999; Eccles and Barber, 1999; Jordan and Nettles, 1999), lower rates of highschool drop-out (Davalos *et al.*, 1999; Mahoney, 2000; Mahoney and Cairns, 1997; McNeal, 1995), and lower levels of delinquency and arrests (Cooley *et al.*, 1995; Eccles and Barber, 1999; Larson, 1994; Mahoney, 2000; Mahoney and Stattin, 2000). These results are consistent with Holland and Andre's (1987) review of more than 30 earlier studies of extracurricular activities. This study builds on that literature by broadening the range of adolescent outcomes associated with participation, examining potential moderators between participation and adolescent outcomes, examining covariation of participation and adolescent outcomes using longitudinal data, and examining the association of cumulative participation with adolescent outcomes. We address 4 questions:

- (1) Is participation in school-based extracurricular activities associated with lower levels of deviance, lower levels of depression, and higher levels of academic performance and engagement?
- (2) Is the association greater when adolescents spend more time engaged in activities or when they are at relatively heightened risk for poor developmental outcomes because of higher stress?
- (3) Does year-to-year variation in adolescents' participation in activities covary with higher levels of academic engagement and lower levels of depression and problem behaviors?
- (4) Does cumulative participation predict adolescent outcomes controlling for both background characteristics and earlier problem behaviors and academic outcomes?

STRESS, TIME, AND ACTIVITY PARTICIPATION

Mahoney and Stattin (2000) have suggested that one reason why the associations between extracurricular activity participation and adolescent outcomes are small is that their effects are heterogeneous across individuals. To the extent that participation benefits at-risk adolescents more than adolescents not at risk, looking only at main effects across the whole population would suppress observed effect sizes. The hypothesis that at-risk populations will differentially benefit from exposure to highly structured leisure settings is consistent both with findings from a longitudinal study of almost 700 youths (e.g., Mahoney, 2000) and with ecological systems theory (e.g., Bronfenbrenner and Morris, 1998). Is participation in extracurricular activities particularly beneficial to those adolescents who are experiencing higher levels of life events stress?

The relationship between life-events stress and adolescent mental health and delinquency is well documented (for reviews, see Compas, 1987; Compas and Phares, 1991; Walker and Greene, 1987). Past studies suggest negative life events are associated with increased levels of psychological symptoms (e.g., Wagner and Compas, 1988), deviance (e.g., Vaux and Ruggiero, 1983), substance use (e.g., Brown, 1987; Landrine *et al.*, 1994; Sussman *et al.*, 1999), and poor school performance (for reviews, see Compas and Phares, 1991; Grant and Compas, 1995; Wagner *et al.*, 1988). Research suggests that participating in structured leisure may buffer adults from the negative association of life events stress with indicators of adjustment by facilitating the development of a strong social support network (Coleman and Iso-Ahola, 1993; Iso-Ahola and Park, 1996) and that it may also change the characteristics of adolescents' social support network in such a way that it makes dysfunctional coping less likely (Eccles and Barber, 1999). Extracurricular activities enable youths to socialize with peers and adults, set and achieve goals, compete fairly, recover from defeat, and resolve disputes peaceably (Carnegie Corporation of New York, 1992). Savin-Williams and Berndt (1990) have suggested peer relations that focus on joint activities rather than on self-disclosure may be particularly important because they distract adolescents from themselves and their problems. If so, participation in school-based extracurricular activities may provide a context in which adolescents interact with peers on a regular basis while focusing on skill development and shared interests and thus provide a respite, or even cathartic release, from other concerns (Joseph, 1994).

Although Osgood and his colleagues have noted that delinquent youth seem to be able to find time in their lives both for participation in structured activities and for engaging in deviant acts (Osgood *et al.*, 1996), it also seems likely that adolescents need to engage in extracurricular activities for at least a minimal amount of time before benefiting. In addition, to the extent that activities like varsity sports or school plays require regular and extensive time commitments that preclude after-school peer contact, they may keep adolescents from spending time in higher risk contexts. This hypothesis will also be explored.

SELF-SELECTION AND EXTRACURRICULAR ACTIVITIES

Perhaps one reason that extracurricular activity participation has received less attention from researchers than might be warranted is the clear role that selection plays in determining who participates and who does not. Adolescents who voluntarily participate in school-based extracurricular activities tend to be of higher social class, European-American, and more positively oriented to school than their peers (McNeal, 1998). Participation also varies depending upon both gender and grade (McNeal, 1999). In addition, adolescents who participate in school-based activities are more oriented toward adult standards and are more likely to come from authoritative families (Durbin *et al.*, 1993). Thus, it is difficult to untangle causal relationships between voluntary extracurricular activity participation and adolescent outcomes from selection effects. Longitudinal studies examining the relationships provide more convincing evidence of association beyond selection. Mahoney and Cairns (1997) found that early drop-out rates were markedly lower among high-risk adolescents who had participated in at least one extracurricular activity during middle or early highschool than among those who had not. In a paper explicitly examining selection effects, Mahoney (2000) tested the hypothesis that early competence may have discriminated between those high-risk youth who went on to become involved in extracurricular activities from those who did not. Within the high-risk cluster, there was only marginal evidence for such a selection effect. Eccles and Barber (1999) also used a longitudinal design to control for early background characteristics and disentangle the association of activity participation with subsequent academic achievement and orientation and problem behavior. They, too, documented independent associations. However, both studies were limited in that control variables cannot account for all, or even most, of the differences between individuals that

might predict differential participation and differences in adolescent outcomes.

This paper used data from a 3-year longitudinal study to examine the association of within-person variability in extracurricular activity participation with within-person variability in academic performance and orientation, depression, and problem behaviors. Although most adolescents participate in extracurricular activities during some point in their highschool career, many students participate some years and do not participate during others. This study took advantage of that within-person variation to ask whether adolescents showed more positive and less negative outcomes during the years they were participating than during the years they were not. Because examination of within-person variation controls for between-person differences, it provides for a stronger test for selection effects than previous longitudinal research. It should be noted, however, that the relationship between participation and adolescent outcomes may still be attributed either to a causal relationship between participation and outcomes or to year-to-year variability in predisposing factors predicting participation. The results of both the cross-sectional and within-person analyses are then compared to the association between cumulative participation and subsequent outcomes.

METHODS

Sample

The data for the current project came from a 3-year longitudinal study of students attending 6 highschools in California from 1987 to 1990. Schools were chosen to represent a diverse sample in terms of school size, location, socioeconomic background, and ethnic composition. Grade, gender, and ethnic distributions of the sample are similar in all 3 years of the study. Those from the first year are presented in Table I. It is important to note that the study is longitudinal in the sense that researchers returned to the same school for 3 consecutive years, which allowed tracking of individual students over time, however, individual adolescents were only followed during the time that they were enrolled in the target school. Thus, adolescents who were seniors during the first year of the study could only participate for 1 year, juniors for 2 years, and freshmen and sophomores for 3 years.

Procedure

All students in participating schools were invited to complete a self-report questionnaire that focused on school-related behaviors (e.g., academic achievement,

Table I. Percentage of Students Participating in Each Type of Extracurricular Activity by Gender, Ethnicity, and Year in School

(Subsample <i>n</i>)	None	Sports	Performing groups	Leadership groups	Clubs
Boys (1,772)	43.8	43.9	4.3	2.1	5.8
Girls (1,989)	45.4	31.3	8.7	5.0	9.5
Freshmen (952)	47.9	38.0	6.2	2.5	5.4
Sophomores (991)	43.5	41.7	6.5	2.6	5.8
Juniors (921)	42.7	38.7	6.4	3.5	8.8
Seniors (897)	44.6	30.1	7.6	6.2	11.5
Asian-American (705)	47.0	31.3	3.0	6.4	12.3
African-American (170)	51.8	35.9	2.4	1.2	8.8
European-American (2,406)	40.2	41.0	8.6	3.4	6.7
Hispanic American (480)	61.3	27.5	3.8	1.7	5.8
Total (<i>N</i> = 3,761)	44.7	37.3	6.6	3.7	7.8

engagement in classes, extracurricular participation) but also included measures of family relationships and parenting behaviors, peer relationships, deviance, and psychological adjustment. Because of its length, the questionnaire was divided into 2 sections administered on separate days. Active consent was obtained from the adolescents and passive consent was obtained from the parents. Approximately 4% of students in attendance on days of questionnaire administration chose not to participate in the study. A full description of the sample and procedure is available in Steinberg *et al.* (1992).

Measures

Grade, Ethnicity, and Gender

Adolescents self-reported on grade (freshmen = 1, sophomore = 2, junior = 3, senior = 4), gender (male = 0, female = 1), and ethnic background. Adolescents were asked which of the 7 ethnic classifications best described them. Adolescents who self-identified as Black/African-American/Afro-American, White (non-Hispanic)/Anglo/Caucasian/ European, Asian/Asian-American, or Hispanic/Latino were included in the study. Pacific Islanders were included in the Asian-American category. For purposes of the analyses, ethnicity was recoded into 3 dichotomous variables (African-American, Asian-American, and Hispanic-American) with European-American as the comparison group.

Extracurricular Activity Participation

Extracurricular activity participation was measured based on student reports of activity participation at school

during the current school year (data were collected in the late Spring). In the first 2 years of the study, adolescents were asked to name the single most important school-based extracurricular activity they had participated in during the current school year. Students who named a legitimate school-based activity that year were classified as participating during that year. In Year 3 of the study, students were asked whether they had participated in each of 21 different school-based extracurricular activities, including interscholastic and intramural sports, performing groups (e.g., band, cheerleading, school play), leadership groups (e.g., student government, honor society), and clubs and other school groups (e.g., yearbook, newspaper, service, and academic clubs). Students were coded as a participant if they reported participating in at least one activity. The 2 different methods of capturing participation resulted in higher reports of participation in Year 3 than in the previous 2 years (65% vs. 56% and 54%, respectively), increasing measurement error in the longitudinal analyses. Cumulative participation was assessed by counting the number of years adolescents had reported participating in at least one school-based extracurricular activity during the 3-year period.

Time

Time commitment was assessed with a single item: "About how many hours per week do you spend on all school-sponsored extracurricular activities?" Participants were asked to respond according to 6 pre-established categories: 1 = "none," 2 = "less than 1 hour per week," 3 = "1–4 hours per week," 4 = "5–9 hours per week," 5 = "10–19 hours per week," and 6 = "20 or more hours per week." The variable was used as a linear variable ($M = 2.2$, $SD = 2.1$).

Life-Events Stress

Life-events stress was measured via student reports of the total number of stressful life events experienced during the past 12 months. Students indicated whether or not they had experienced each of 20 negative life events during the past year, including: "I was suspended from school," "I broke up with my boyfriend or girlfriend," "One of my grandparents died," and "One of my parents lost his or her job." Responses were coded 0 = no and 1 = yes and then summed to obtain an overall count. To minimize skewness resulting from the small number of participants experiencing more than 9 stressors, all participants experiencing more than 9 stressors were assigned a value of 9. The mean number of negative life events adolescents reported experiencing during the past year was 3.29, $SD = 2.14$.

Substance Use

Adolescents were asked to report how often they had (1) used alcohol, (2) used cigarettes or chewing tobacco, (3) smoked marijuana, or (4) used a drug other than marijuana since the beginning of the school year. The response format was a 4-point scale from 1 = "never" to 4 = "often." Because previous research has indicated that extracurricular activities have a different association with social substance use, such as drinking and smoking, than with illegal drug use (Kleiber, 1999), each substance was examined separately.

Depressive Symptoms

Depressive symptoms were measured using a version of the psychological symptoms subscale of the Center for Epidemiologic Studies Depression Scale (Radloff, 1977) for use in normal populations that was modified slightly to make it easier to administer to a highschool population (sample item: "How many times in the last month have you felt 'low' or depressed?") Respondents indicated the frequency of problems experienced during the past month according to 4 categories and a mean score was calculated. Responses included: 1 = "never," 2 = "once," 3 = "twice," and 4 = "3 times or more." (8 items, Cronbach's $\alpha = .84$).

Academic Performance and Orientation

Three indicators were used to measure academic performance and orientation. Students provided a self-report of their grades in math, science, social studies, and English, which were averaged to calculate grade-point average scored on a conventional 4-point scale. Previous

work indicates that self-reported grades and actual grades taken from official school records are highly correlated ($r = .80$, Dornbusch *et al.*, 1987). Adolescents' attitude toward school was measured using a 6-item scale in which students reported on their value and commitment to school on a 4-point scale from 1 ("strongly agree") to 4 ("strongly disagree") (sample item: "I feel satisfied with school because I'm learning a lot." $\alpha = .69$). Responses were recoded so that higher scores reflected more positive school orientation and averaged (Steinberg *et al.*, 1992). Academic aspirations were measured by asking adolescents "Considering your situation, what is the highest level that you really expect to reach in school?" Adolescents were offered 6 choices coded from 1 ("leave school as soon as possible") to 6 ("finish college and take further training (medical, law, graduate school, etc.)").

RESULTS**Extracurricular Activity Participation and Adolescent Characteristics**

The proportion of adolescents who reported participating in each of 4 types of extracurricular activities or in no activities during the first year of the study was calculated by gender, year in school (freshman through senior), and ethnicity. Results are reported in Table I. Patterns of participation covaried with all demographic predictors. Boys were relatively more likely to participate in sports than were girls, but almost twice as many girls participated in performing groups, leadership organizations, and clubs than boys (gender \times activity type $\chi^2 = 104.77$, $df = 4$, $p < .000$). Freshmen were relatively more likely to participate in extracurricular activities than upperclassmen, although participation varied by activity type (year by activity type $\chi^2 = 75.29$, $df = 12$, $p < .000$). For example, participation in sports was somewhat lower in the senior year of high-school, but participation in clubs, leadership groups, and performing groups was steadily higher from the freshman to senior classes. Participation in extracurricular activities also varied by ethnicity (ethnicity by activity type $\chi^2 = 157.56$, $df = 12$, $p < .000$). European-Americans were most likely to participate in extracurricular activities (60%), while Hispanic-Americans were least likely to do so (39%). This also varied by activity type. European-Americans were most likely to participate in sports and performance groups, but least likely to participate in clubs. Thus, demographic background characteristics predicted both whether adolescents participated in extracurricular activities and the type of activities they participated in if they chose to do so.

Cross-Sectional Findings: Extracurricular Activities, Substance Use, and Academic Outcomes

A series of regression analyses was performed to address 2 questions: (1) Do adolescents who participate in extracurricular activities report lower levels of substance use and better academic outcomes? (2) Does participation in extracurricular activities buffer adolescents from the negative effects of life events? All data come from the first year of the study. In the first step of these analyses, control variables (grade, gender, and the set of dichotomously coded ethnic variables) were entered into the equation. In step 2, life events and extracurricular activity participation were entered. In step 3, the interaction between life events and participation (life events* participation) was entered. Results are reported in Table II.

Adolescents who participated in extracurricular activities reported lower levels of smoking, marijuana use, and use of other drugs compared to non-participants

($t = -9.91, -5.95, \text{ and } -8.08$, respectively). Participants and non-participants did not differ in self-reported drinking ($p = .25$). Participants also reported higher grades, more positive attitudes toward school, and higher academic aspirations than non-participants ($t = 16.76, 6.78, \text{ and } 18.57$, respectively), but did not differ in self-reported depressive symptoms ($p = .11$). As predicted, experiencing more life events was associated with higher levels of substance use and depression, and poorer academic outcomes. There was only modest evidence, however, that participating in extracurricular activities buffered adolescents from the negative effect of life events on adolescent outcomes. The association between life events and smoking, marijuana use, and use of other drugs was attenuated for adolescents who participated in extracurricular activities ($t = -2.11, -3.30, -4.19$, respectively). Contrary to our hypothesis, participating in extracurricular activities increased the negative association between life events and academic aspirations ($t = -2.05$). No evidence consistent

Table II. Results of Regression Analyses Examining Association of Extracurricular Activity Participation and Academic Outcomes and Buffering Effect of Extracurricular Activity Participation on the Association Between the Experience of Stressors and Adolescent Outcomes

	Drinking	Smoking	Marijuana	Other drugs	Depression	Grades	Attitude	Aspiration
	B	B	B	B	B	B	B	B
<i>Model 1</i>								
Intercept	1.74	1.54	1.43	1.14	1.51	2.84	2.72	4.73
Grade	.18***	.07***	.10***	.05***	.12***	-.02	-.05***	.04*
Gender	-.08**	.04	-.04	-.03	.49***	.13***	.09***	.10**
African-American	-.58***	-.52***	-.28***	-.09*	-.19***	-.49***	.11*	-.19**
Asian-American	-.70***	-.49***	-.45***	-.15***	-.07*	.25***	.16***	.22***
Hispanic-American	-.31***	-.18***	-.19***	-.02	-.16***	-.38***	.08**	-.64***
Model R	.34	.22	.24	.14	.36	.28	.18	.23
<i>Model 2</i>								
Intercept	1.56	1.48	1.37	1.14	1.26	2.77	2.72	4.48
Grade	.17***	.07***	.10***	.05***	.12***	-.02*	-.05***	.03*
Gender	-.11***	.01	-.07*	-.05*	.45***	.16***	.11***	.13***
African-American	-.62***	-.59***	-.34***	-.13**	-.24***	-.41***	.14***	-.09
Asian-American	-.65***	-.47***	-.43***	-.14***	-.01	.24***	.16***	.24***
Hispanic-American	-.32***	-.23***	-.22***	-.05	-.15***	-.30***	.10***	-.51***
Participation	-.04	-.22***	-.17***	-.15***	.04	.38***	.12***	.62***
Life events	.08***	.08***	.06***	.03***	.09***	-.06***	-.03***	-.05***
Model R	.38	.29	.29	.23	.44	.41	.23	.38
<i>Model 3</i>								
Intercept	1.53	1.43	1.31	1.08	1.24	2.77	2.73	4.43
Grade	.17	.07	.10	.05	.12	-.02	-.05	.03
Gender	-.11	.01	-.07	-.05	.45	.16	.11	.12
African-American	-.63	-.59	-.34	-.13	-.24	-.41	.14	-.09
Asian-American	-.65	-.46	-.43	-.14	-.01	.24	.16	.24
Hispanic-American	-.32	-.23	-.22	-.05	-.15	-.30	.10	-.51
Participation	.02	-.13	-.04	-.05	.08	.39	.11	.72
Life events	.09	.09	.08	.05	.10	-.06	-.03	-.03
Partic* events	-.02 (NS)	-.03*	-.04***	-.03***	-.01 (NS)	.00 (NS)	.00 (NS)	-.03*
Model R	.38	.30	.30	.24	.44	.41	.23	.38

Note. $N = 3,773$, Model 1 $df = 5, 3,768$; Model 2 $df = 7, 3,766$; Model 3 $df = 8, 3,765$.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

Table III. Results of Regression Analyses Examining Time Commitment as a Potential Mediator of the Association of Extracurricular Activity Participation, Substance Use, and Academic Outcomes. Analyses Only Include Those Students Who Participate in Activities

	Drinking	Smoking	Marijuana	Other drugs	Depression	Grades	Attitude	Aspiration
	B	B	B	B	B	B	B	B
<i>Model 1</i>								
Intercept	1.35	1.38	1.27	1.09	1.42	3.02	2.82	4.99
Grade	.20***	.07***	.10***	.04***	.11***	-.03*	-.06***	.01
Sex	-.09*	-.01	-.05	-.03	.41***	.18***	.11***	.18***
African-American	-.47***	-.46***	-.21*	-.06	-.34***	-.55***	.14*	-.17
Asian-American	-.63***	-.39***	-.39***	-.11***	.00	.24***	.15***	.15**
Hispanic-American	-.33***	-.19***	-.20***	-.02	-.06	-.36***	.09*	-.46***
Life events	.07***	.06***	.04***	.01***	.08***	-.06***	-.02***	-.06***
Time commitment	.02	-.01	-.01	-.01	-.01	.04**	.01	.04**
Model R	.37	.25	.26	.15	.42	.36	.21	.26
<i>Model 2</i>								
Intercept	1.21	1.21	1.12	.98	1.45	3.05	2.85	5.27
Grade	.20	.07	.10	.04	.11	-.03	-.06	.01
African-American	-.47	-.46	-.21	-.06	-.34	-.55	.14	-.17
Asian-American	-.63	-.39	-.39	-.11	.00	.24	.15	.15
Hispanic-American	-.33	-.18	-.20	-.02	-.06	-.37	.09	-.46
Gender	-.09	-.02	-.05	-.03	.41	.18	.11	.18
Life events	.11	.11	.09	.05	.07	-.07	-.03	-.15
Time commitment	.06	.03	.03	.02	-.01	.03	.00	-.03
Life events * time	-.01 (NS)	-.01#	-.01*	-.01**	.00 (NS)	.00 (NS)	.00 (NS)	.02***
Model R	.38	.25	.27	.16	.42	.36	.21	.27

Note. *N* = 2065, Model 1 *df* = 7,2058, Model 2 *df* = 8, 2057.
 #*p* ≤ .10; **p* ≤ .05; ***p* ≤ .01; ****p* ≤ .001.

with a buffering effect was found for drinking, depression, grades, or attitude toward school (*p* > .15).

Does Time Spent on Activities Matter?

In order to assess whether the association between participation and outcomes was mediated by the amount of time adolescents spent participating in them, regression analyses were used to predict adolescent outcomes from background characteristics (grade, gender, and ethnicity), activity participation, and life events. Next, time spent on academic activities was entered into the equation, and the independent association of participation and outcomes was observed. In no case did entering time commitment change the association between participation and outcomes (results not tabled).

To test for a potential buffering effect of time commitment on the association between life events and adolescent outcomes, analyses were performed only on those adolescents who had reported participating in extracurricular activities. In the first step of the regression analyses, adolescent outcomes were regressed on life events and time commitment, controlling for background characteristics. In the second step, the interaction between life events and time commitment (life events * time) was

entered into the equation. Results are reported in Table III. Time commitment proved a weak predictor of adolescent outcomes. More time spent on extracurricular activities was associated with higher grades and academic aspirations (*t* = 3.09, 2.93, respectively), but there was no association between time commitment and substance use, depression, or academic attitudes (*p* ≥ .08). Time commitment did moderate the association between life events and some adolescent outcomes, however. Among adolescents who participated in activities, spending more time on extracurricular activities buffered adolescents from the negative effect of life events on marijuana use and use of other drugs (*t* = -2.95, -2.55, respectively) and was marginally significant for smoking as well (*t* = -1.89, *p* = .058). It also buffered adolescents from the negative association of life events with lowered academic aspirations (*t* = 3.27).

Year-to-Year Variability in Extracurricular Activities, Substance Use, and Academic Outcomes

Year-to-year variation in extracurricular activity participation provided the opportunity to examine within-person variability in adolescent outcomes as a function of variability in participation. For example, of the 1,194

Table IV. Results of HLM Analyses Predicting Within-Adolescent Variation in Adolescent Outcomes as a Function of Extracurricular Activity Participation and Potential Buffering Effects of Participation on the Association Between Stressors and Adolescent Outcomes

	Drinking	Smoking	Marijuana	Other drugs	Depression	Grades	Attitude	Aspiration
<i>Baseline model</i>								
% Variance between adolescents	58.9	65.8	54.4	24.7	59.0	74.5	47.6	66.4
<i>Model 2</i>								
Intercept	1.42	1.31	1.33	1.13	1.22	2.87	2.83	4.60
Sex	-.08	.05	-.11***	-.07***	.50***	.17***	.11***	.14***
African-American	-.54***	-.46***	-.19**	-.08***	-.38***	-.37***	.18***	.06
Asian-American	-.50***	-.37***	-.26***	-.07***	-.03	.27***	.17***	.27***
Hispanic	-.11	-.14	-.08	-.01	-.15***	-.33***	-.01***	-.45***
Year	.15***	.07*	.06***	.03***	.13**	-.03***	-.08***	.06***
Life events	.04***	.03***	.03***	.02**	.07***	-.03***	-.01***	-.02***
Activity participation	-.02	-.07***	-.09***	-.08***	.05	.17***	.07***	.34***
<i>Model 3</i>								
Intercept	1.39	1.27	1.28	1.10	1.15	2.90	2.82	4.54
Sex	-.08	.05	-.11	-.07	.50	.17	.11	.14
African-American	-.54	-.46	-.19	-.08	-.38	-.37	.18	.06
Asian-American	-.50	-.37	-.26	-.06	-.05	.27	.17	.28
Hispanic	-.11	-.14	-.09	-.01	-.15	-.33	-.01	-.45
Year	.15	.07	.06	.03	.16	-.03	-.08	.06
Life events	.05	.05	.05	.03	.08	-.03	-.01	.00
Activity participation	.02	-.01	-.01	-.02	.03	.13	.08	.44
Life events * participation	-.01	-.02#	-.03*	-.02*	.00	.01	.00	-.03*

Note. $N = 3,427$. For Model 2, approximate between-person $df = 1,545$, within-person $df = 3,419$, for model 3, within-person $df = 3,418$.

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

freshmen and sophomores who participated in this study for all 3 years, 21% reported no extracurricular participation for any of the 3 years, 37% reported participating for all 3 years, and the remaining 42% reported participating in some years and not in others. Stable versus unstable participation did not vary by gender or ethnicity ($\chi^2 = 2.42$, $df = 1$, $p = .12$; $\chi^2 = 4.75$, $df = 3$, $p = .19$, respectively).

A series of hierarchical linear models (HLMs) were calculated to assess the extent to which (a) year-to-year (i.e. within-person) variation in extracurricular activity participation covaried with lower levels of substance use and more positive academic outcomes, and (b) extracurricular activity participation buffered adolescents from the negative impact of life events. Because these models examined year-to-year variations in adolescent outcomes within person, selection effects due to differences between adolescents who did and did not participate in activities were eliminated. These analyses employ a repeated measure design, in which year is nested within adolescents. In the first step of the analyses, a baseline model was calculated, which parses variance in the dependent variables into within- and between-adolescent differences. In the second step of the analyses, between-person differences in outcomes were predicted from adolescent sex and ethnic background, while within-person differences were

predicted from year in school, life events, and extracurricular activities. In the final step, the interaction of life events and activity participation was entered (life events * participation). Analyses relied on the 3,427 students who (a) participated in the study for at least 2 years (thus eliminating all those who were seniors during the first year of the study), (b) had complete data on all questions of interest for each year they participated. In these analyses, all variables are entered uncentered and robust standard errors were used to calculate fixed effects. Like standard regression models, these models assume homogeneity of slopes across individuals. (Analyses were also performed without this assumption, with identical results.) Results are reported in Table IV.

As expected, demographic background characteristics predicted between-adolescent differences. Girls reported less marijuana and other drug use than boys, more depression, and more positive academic outcomes. There were significant ethnic differences on all variables, with African- and Asian-American youths reporting lower levels of substance use and African- and Hispanic-Americans reporting lower levels of depression than European-Americans. Hispanic-Americans reported lower grades and aspirations and poorer attitudes toward school than European-Americans. Asian-Americans reported more positive academic outcomes and African-Americans

reported lower grades, but better attitudes toward school, than their European-American peers. Also as expected, older adolescents reported more involvement in problem behavior, higher levels of depression, and less positive academic outcomes than do younger adolescents.

Adolescents' participation in extracurricular activities was associated with year-to-year variation in adolescents' substance use and academic performance and attitudes. During years when they were involved in extracurricular activities, adolescents reported lower levels of smoking, marijuana use, and use of other drugs ($t = -2.27, -3.54, -4.21$, respectively) as well as higher grades, a more positive academic attitude, and higher academic aspirations ($t = 8.14, 3.90$, and 10.13 , respectively). There were no differences in either depressive symptoms or alcohol consumption during years when adolescents did or did not participate. Although adolescents reported higher substance use, greater depression, and less positive academic outcomes when they experienced more negative life events, evidence for a stress buffering effect was quite modest. The negative associations between life events and marijuana use and use of harder drugs were smaller during years when adolescents were participating in extracurricular activities than during years when they were not ($t = -2.33$ and -1.94 , respectively). As in the cross-sectional results, the negative association between stress and academic aspirations was larger for students who participated in extracurricular activities than for those who did not ($t = -2.05$). Taken together, the results of the longitudinal HLM analyses were consistent with the results obtained in the cross-sectional analyses.

Cumulative Participation: Longitudinal Findings

The HLM analyses used longitudinal data to examine within-person variation in adolescent outcomes as a function of within-person variation in extracurricular activity participation. In this section, we address the question of longer-term consequences of participation: Is cumulative participation in extracurricular activities over a 3-year period associated with more positive adolescent outcomes at the end of that period, once both demographic characteristics and earlier adolescent characteristics are controlled? In order to address this question, two sets of univariate general linear models were calculated. The first examined main effects: mean levels of Year 3 adolescent outcomes were calculated separately for those who had participated in extracurricular activities for none, 1, 2, or 3 of the past 3 years. In the second analysis, marginal mean levels of Year 3 adolescent outcomes were calculated by years of participation controlling for gender, ethnicity, grade, and Year 1 adolescent outcomes (e.g., marginal means of Year 3 alcohol use were calculated by years of participation controlling for demographic characteristics and Year 1 alcohol use). Results are reported in Table V. Results were consistent with previously presented cross-sectional and within-person HLM analyses. The differences between adolescents who varied in cumulative participation were markedly reduced, but not eliminated, when selection factors were entered into the equation. More years of participation was associated with less use of marijuana and other drugs, higher grades, a more positive attitude toward school and higher academic aspirations ($p \leq .01$) even after prior adolescent characteristics were controlled. There

Table V. Unadjusted and Marginal Means of Time 3 Outcomes as a Function of Cumulative Participation in School-Based Extracurricular Activities. Marginal Means Control for Sex, Grade, Ethnicity, and Time 1 Outcome

	Drinking	Smoking	Marijuana	Other drugs	Depression	Grades	Attitude	Aspirations
Unadjusted means								
Non-participant	1.86	1.67	1.51	1.24	2.60	2.75	2.65	4.58
1 year	1.82	1.78	1.48	1.24	2.62	2.82	2.65	4.82
2 years	1.79	1.57	1.38	1.13	2.64	3.11	2.73	5.20
3 years	1.88	1.55	1.28	1.10	2.68	3.33	2.80	5.45
η^2	.00 (NS)	.01**	.01***	.01***	.00 (NS)	.11***	.02***	.11***
<i>N</i>	1,602	1,602	1,595	1,602	1,310	1,318	1,598	1,334
Marginal means								
Non-participant	1.83	1.58	1.43	1.18	2.62	3.01	2.69	4.90
1 year	1.83	1.70	1.40	1.24	2.61	2.98	2.65	4.96
2 years	1.78	1.54	1.35	1.10	2.66	3.11	2.73	5.16
3 years	1.84	1.53	1.28	1.10	2.68	3.20	2.82	5.31
η^2	.00 (NS)	.01 (NS)	.01**	.01**	.00 (NS)	.04***	.02*	.04***
<i>N</i>	1,259	1,264	1,241	1,262	1,268	1,282	1,317	1,328

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

was no association between participation and alcohol use, tobacco use, or depression.

DISCUSSION

The goal of this study was to extend our understanding of the association between participation in school-based extracurricular activities and adolescent outcomes by addressing 4 questions: (1) Is participation in school-based extracurricular activities associated with lower levels of deviance and depression, higher academic performance and aspirations, and more positive attitudes toward school? (2) Is the association greater when adolescents spend more time engaged in activities or when they are at relatively heightened risk for poor developmental outcomes because of greater exposure to life events stress? (3) Does year-to-year variation in adolescents' participation in activities covary with problem behaviors and academic outcomes? and (4) Does cumulative participation predict adolescent outcomes controlling for both background characteristics and earlier problem behaviors and academic outcomes? These questions address two larger issues. Questions 1, 3, and 4 take three different approaches to address the issue of whether the association between voluntary participation in extracurricular activities and positive adolescent outcomes can be explained by selection factors. Question 2 addresses the issue of whether the small effect sizes observed are due to individual differences in participants.

The results of cross-sectional analyses were consistent with the past literature (e.g., McNeal, 1998) in documenting strong selection effects in participation as a function of gender, age, and ethnicity. Ethnic differences were more striking than age or gender differences; with Hispanic youths showing markedly lower rates of participation than other adolescents. Choice of most important activity covaried with background characteristics more dramatically than did participation. Controlling for demographic characteristics, adolescents who participated in school-based extracurricular activities were less likely to use tobacco, marijuana, and other drugs (but not alcohol) than their non-participating peers. They were also more likely to perform better in school, have a more positive attitude toward it, and believe that they will remain in school longer. There was no association between participation and reported depressive symptoms.

Two types of longitudinal analyses were used to address the issue of whether selection factors account for the association between participation in extracurricular activities and adolescent outcomes: examining year-to-year, within-person covariation of extracurricular activity participation and adolescent outcomes and examining

the association of cumulative participation and adolescent outcomes controlling for both demographic characteristics and earlier problem behavior and academic indicators. Results of both sets of longitudinal analyses were consistent with the cross-sectional findings. Statistically controlling for potential demographic selection effects and prior adjustment and modeling within-person variability decreases the magnitude of the differences between those who participate and those who do not, but it does not eliminate them. Both cross-sectional and longitudinal analyses are consistent with past studies suggesting that students who are involved in school-based extracurricular activities show more positive academic outcomes and are less likely to be involved in the use of substances other than alcohol (Eccles and Barber, 1999; Mahoney, 2000; Mahoney and Cairns, 1997; Mahoney and Stattin, 2000; McNeal, 1995). Evidence is thus consistent with the model that participation in extracurricular activities influences adolescent development in positive ways and cannot be attributable solely to selection.

Although participation is associated with better developmental outcomes across a range of outcomes, it is important to note that effect sizes are quite small, once demographic background characteristics and prior adjustments have been controlled. The analyses presented here provide some evidence that the association of extracurricular activity participation with adjustment is larger when youth spend more time on activities and when they experience higher levels of stress. Participating in extracurricular activities buffered adolescents from the negative effects of life events stress on use of tobacco, marijuana, and other drugs. The relationship between extracurricular activities and these same indicators of substance use also increased as adolescents spent more time in activities. This is complimentary to findings that more time spent with peers in relatively unstructured environments is associated with higher rates of substance use, especially when that time is spent with peers who are supportive of substance use (Caldwell and Darling, 1999; Mahoney and Stattin, 2000). Thus, despite past findings that time spent on extracurricular activities does not preclude involvement in problem behavior (Osgood *et al.*, 1996), it seems plausible that time spent in highly structured settings may channel some stress-reduction efforts adolescents might otherwise spend on substance use into more productive channels. There was no evidence, however, that the association between academic outcomes and extracurricular activity participation increased with time. Although the mechanism underlying this cannot be addressed in the current study, the difference between results for substance use and for academic outcomes may provide some insight into process. Extracurricular activities may influence

substance use because they change the context in which adolescents spend their time, but may influence academic outcomes because they influence adolescent identity processes, which are less time dependent (Waterman, 1984). It is also plausible that the differences between the time effects on academic outcomes and problem behaviors are attributable to differences in the type of activities that require large time commitments—particularly sports—and other activities that are less time intensive. Further research is needed to investigate these alternative hypotheses.

Importantly, there is little evidence that variability either in time use or in life events stress explains the modest effects associated with extracurricular activity participation. Although the modest effects may be attributable to limitations of measurement, they are consistent with the effect sizes observed in other studies in this area (e.g., Cooley *et al.*, 1995; Davalos *et al.*, 1999; Eccles and Barber, 1999; Gerber, 1996; Mahoney, 2000; Marsh, 1992). Such modest effects are important for policy makers to keep in mind, given the hope placed on school-based leisure programming to alleviate a range of problem behaviors (e.g., Brown and Theobald, 1998; Carnegie Corporation of New York, 1992; McNeal, 1995). The strongest association between participation and outcomes was with regards to academic aspirations, an interesting observation, given past findings indicating that extracurricular activities may help protect high-risk adolescents from early drop-out (Mahoney and Cairns, 1997; McNeal, 1995), and one that warrants further investigation. In addition, in the schools studied here, almost 45% of students reported not participating in activities in a given school year. This is especially true of Latinos and African-Americans. To the extent that participation in extracurricular activities helps to bond youth to school contexts and helps them to create important ties to teachers outside of the classroom and introduce them to opportunities they do not have at home, it is important for us to understand more about why youth are choose to participate and why they do not.

LIMITATIONS

This research is limited in several respects. Most importantly, it provides no information about differences in adolescents' experiences in different extracurricular activities. Some activities, such as sports or music, regularly require long hours of time committed to practice, sharpening of skills, and coordination of self with others. Some of these activities are intense, but short-lived, such as theater. Still other activities require little time or commitment from students. Detailed information about the varieties of

experiences adolescents have across different activities would provide a much richer portrait of what types of activities may most facilitate positive development. Second, these data are limited in that extracurricular activities vary in their timing across the school year, but outcomes are limited to measurement at a single point in time. Thus, some students may participate in a Fall sport, which would then be used to predict outcomes the following Spring, while other activities and outcomes are measured contemporaneously. Both of these first 2 issues add variability and error to the analyses that may suppress effect sizes. Unfortunately, these problems cannot be addressed with the present data. Finally, this study is limited in that all information comes from a single source: the adolescents themselves. It is possible that the relationships observed may result from perceptual or reporting differences of participants and non-participants. This bias is reduced in the longitudinal analyses. Regression analyses in which Time 1 variables are controlled when predicting Time 2 outcomes and HLM analyses of within-person covariation of predictors and outcomes in adolescent analyses will both tend to minimize the effects of individual differences in response bias. Nonetheless, it is likely that some bias remains.

CONCLUSION

These results, as well as the extant literature, suggest that the relationship between extracurricular activity participation and adolescent adjustment is consistent, but small. Given the compelling statements about the potential benefits of participation made by proponents of extracurricular activities (e.g., Brown and Theobald, 1998; Carnegie Corporation of New York, 1992), one might reasonably ask "why?" First, extracurricular activities, particularly school-based extracurricular activities, make up only a small part of the broader context of leisure that contributes to adolescent development (Cooper *et al.*, 1999), and taking more than one context into account may significantly increase predictive power. Second, as is implicit in past work (e.g., Eccles and Barber, 1999; Mahoney, 2000; Mahoney and Stattin, 2000), the impact of extracurricular activities on development may vary markedly depending upon characteristics of the person, the setting, and the activity. Although we, like others, have provided some evidence that participation may be particularly beneficial to higher risk adolescents, and that the benefits of participation may be enhanced when youth spend more time in that context, the empirical models employed remain quite crude in comparison to the theoretical models from which they derive. For example, Darling *et al.* (1994) have suggested that such activity-based relationships make a

unique contribution to adolescent identity development and function quite differently from the emotion-based relationships adolescents enjoy with parents or peers. Mahoney (2000) and Eccles and Barber (1999) provide evidence that the association of participation with positive adolescent development is enhanced when it results in positive peer networks. Although this work is promising, research on extracurricular activities has modeled social network characteristics and social relationships experienced in this context in a relatively undifferentiated way. Even the leisure studies literature, which provides a rich theoretical basis focusing on the meaning and experience of leisure (see Kleiber, 1999, for example), has failed to apply these models to understanding adolescents' experience in extracurricular activities.

In a summary of ecological systems theory, Bronfenbrenner and Morris (1998) posit that development is optimized when individuals engage in activities that can grow with the developing individual (i.e., that offer new challenges in response to changes in the person) and when the developing person engages in these activities in the context of an emotionally supportive, but challenging, relationship. As a field, developmental psychology has focused its attention on the important role social interactions play in facilitating development. Until recently, American developmentalists have spent much less time investigating the role of activities—i.e., by what individuals *do*—in facilitating development (although see Larson and Verma, 1999; Schoggen, 1991, for important alternative approaches). Recent work examining adolescents' use of leisure and their participation in developmental contexts such as extracurricular activities takes an important step toward integrating activities into our understanding of development. Including more process-level variables, such as relationships and interactions with significant others in those settings, the meaning and cognitive demands specific to particular activities, and the impact of participation on social status and social networks (see Eder and Kinney, 1995, for an example of this type of approach) will increase our understanding of this potentially important developmental context still further.

ACKNOWLEDGMENTS

The author wishes to thank B. Bradford Brown, Sanford Dornbusch, and Laurence Steinberg for use of these data. Data collection was supported by grants to Laurence Steinberg and B. Bradford Brown from the U.S. Department of Education, through the National Center on Effective Secondary Schools at the University of

Wisconsin—Madison; and to Sanford M. Dornbusch and P. Herbert Leiderman from the Spencer Foundation.

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