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<ATL> Trajectories of Organized Activity Participation Among Urban Adolescents: Associations With Young Adult Outcomes </ATL>

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<RRH> Trajectories of Participation Among Urban Youth: Associations With Young Adult Outcomes </RRH>

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<ABS>Organized activity participation provides opportunities for adolescents to develop assets that may support favorable outcomes in young adulthood. Activity participation may be especially beneficial for marginalized youth because they are likely to face stressors that increase risk of negative outcomes. We used growth mixture modeling to identify activity participation trajectories among African American adolescents in an urban, disadvantaged community (Wave 1: mean age = 14.86 years, standard deviation = 0.64; 49% male, N = 681). We also investigated if young adult outcomes differed by participation trajectory subgroups, the results of which suggested that a 3-class model best fit the data: low initial and decreasing levels of participation (74%); moderate initial and consistent (21%); and moderate initial and increasing (5%). Adolescents in the increasing class reported higher life satisfaction and lower substance use in young adulthood compared to the

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decreasing class. Youth who increase participation in activities over time may experience greater opportunities for building assets related to positive development that support health and well-being into young adulthood.</ABS>

## <H1>INTRODUCTION</H1>

<P>Organized activities refer to a broad-range of structured, adult-sponsored activities outside the school curriculum within diverse contexts such as school, church, and community (Bohnert, Fredricks, & Randall, 2010). Participation in organized activities provides vital opportunities for youth to develop assets that promote positive developmental trajectories (Mueller, Lewin-bizan, & Urban, 2011). Researchers have found that participation is associated with positive outcomes and fewer problem behaviors during adolescence (Eccles & Gootman, 2002). Researchers have also found that the positive effects of participation may extend into emerging adulthood (ages 18–25 years; Fredricks & Eccles, 2006), but few have explored if this extends into early adulthood, between 25 and 40 years of age.</P>

<P>Organized activity participation (OAP) may be especially beneficial for youth living in urban, disadvantaged contexts because they likely face stressors that put them at increased risk of negative outcomes (Patton, Woolley, & Hong, 2012). Opportunities to build assets may help offset the negative consequences of risk exposure, in the short and long term (Fredricks & Simpkins, 2012). Most researchers examining longer term effects of OAP have explored these relationships among primarily White, middle class or nationally representative samples, with some exceptions (see Metzger, Crean, & Forbes-Jones, 2009; Pedersen, 2005). Thus, the long-term effects of participation among youth living in urban, disadvantaged contexts is largely unknown.</P>

<P>Positive youth development (PYD) and the developmental–ecological model provide useful frameworks for examining how participation in organized activities among youth may influence adult outcomes. PYD is a developmental systems-based model that emphasizes the plasticity of human development through interactions between individuals and their environment (Lerner, Lerner, & Benson, 2011). These interactions, called proximal processes, represent key forces shaping development that are influenced by the individual, the context, and the transaction between them over time (Bronfenbrenner & Morris, 2006). The focus of PYD is on supporting proximal processes that help youth build developmental assets (e.g., positive relationships) to support positive and reduce risk of negative outcomes (Lerner, 2005). OAP is one way that youth experience proximal processes that help build assets associated with PYD (Larson et al., 2004). Researchers generally support participation as a way to enhance PYD, but methodological concerns pose challenges to studying long-term outcomes.</P>

## <H2> **OAP: Methodological Issues**</H2>

### <H3>Participation over time.</H3>

<P>How youth participate in organized activities over time may influence the extent to which youth experience proximal processes that contribute to positive development (Tudge, Mokrova, Hatfield, & Karnik, 2009). Researchers have reported various patterns of activity participation throughout adolescence (Farb & Matjasko, 2012). Some have found that participation generally decreases during the high school years (Denault & Poulin, 2009), while others have found that participation may remain consistent (Zaff, Moore, Papillo, & Williams, 2003) or even increase during adolescence (Mahoney, Cairns, & Farmer, 2003). These different trajectories may have implications on opportunities for building assets and the long-term effects of participation on development. Exploring multiple distinct trajectories of participation may advance our understanding of adolescent participation and its long-term effects.</P>

### <H3>Measurement.</H3>

<P>Participation is a multidimensional construct that has been conceptualized in many ways, including behavioral and psychological engagement. Researchers have assessed behavioral engagement as intensity (frequency of involvement), breadth (number of activities), and duration (length of time in activities; Bohnert et al., 2010). The relevance of each type may depend on developmental stage. Youth may participate in fewer activities more intensely later in adolescence; thus, intensity may best capture behavioral engagement at this stage (Denault & Poulin, 2009). Psychological engagement is another dimension of participation influencing long-term outcomes. Psychological engagement includes interest, enjoyment, and value and importance ascribed to participation; researchers have found that activities youth consider important may have more beneficial effects on their development than those rated less important (McGuire & Gamble, 2006). Few researchers have incorporated both behavioral and psychological engagement in a single measure assessed over time.</P>

### <H3>Selection bias.</H3>

<P>Researchers have examined several factors contributing to selection bias in participation studies. In this context, selection bias is “the idea that adolescents with certain characteristics that are related to better functioning are also selecting into (organized activity) participation” (Farb & Matjasko, 2012, p. 4). Two factors that may be associated with selection bias include self-acceptance and academic achievement. Adolescents who start high school with higher levels of self-acceptance may be more likely to engage in (or select into) organized activities because of the high levels of skill required to participate (Farb & Matjasko, 2012). Academic achievement may also create selection bias. Researchers have found a robust relationship between academic achievement and participation (Roth, Malone, & Brooks-Gunn, 2010). Youth reporting higher levels of activity participation may also be more likely than nonparticipants to do well in school in the first place. These results suggest

that these factors are critical control variables when examining the relationship between participation and adult outcomes.</P>

### <H3>*Sociodemographic and sample characteristics.*</H3>

<P>Sociodemographic characteristics may also influence participation trajectories during adolescence. Researchers have found, for example, that parental education is associated with adolescent OAP; adolescents whose parents have higher levels of education are more likely to participate than those whose parents have less education (Linver, Roth, & Brooks-Gunn, 2009). Sex differences in participation may also exist. Some researchers suggest that females generally participate at higher levels than males (except sports; Eccles, Barber, Stone, & Hunt, 2003), while others have found no sex differences (Pedersen, 2005). Thus, sociodemographic characteristics are important control variables when investigating participation trajectories and young adult outcomes.</P>

## <H2>**OAP and Adult Outcomes**</H2>

<H3>*Depressive symptoms.*</H3> <P>Depressive symptoms may have negative effects on social relationships and daily functioning and increase risk of harmful behaviors during young adulthood (Centers for Disease Control and Prevention, 2013). Researchers have found that higher levels of activity participation are associated with lower levels of depressive symptoms in adolescence (Bohnert, Richards, Kolmodin, & Lakin, 2008), while others have found no association (Darling, 2005). Few researchers have examined the relationship between adolescent participation and adulthood depressive symptoms. Notably, Fredricks and Eccles (2006) found that participation during adolescence was not associated with depressive symptoms in emerging adulthood, though they did not account for growth over time or consider distinct trajectories. Longer term effects of different adolescent participation trajectories on young adult depression are unknown.</P>

<H3>*Life satisfaction.*</H3> <P>Life satisfaction refers to one's overall cognitive appraisal of his/her quality of life (Diener, 1994). Individuals with high life satisfaction tend to possess developmental assets such as strong social connections, which may contribute to higher resistance to stressors and better physical and mental health compared to those with low life satisfaction (Diener, 1994). Researchers have found an association between participation and life satisfaction among youth (Bundick, 2011). OAP may foster intrinsic psychological rewards that, in turn, contribute to life satisfaction (Nakamura & Csikszentmihalyi, 2002). Although most researchers examining this relationship have only examined life satisfaction during adolescence, its effects may extend into adulthood (Diener, 1994). Furthermore, long term effects may vary by how youth participate over time.</P>

<H3>*Substance use.*</H3> <P>The relationship between participation and substance use in emerging adulthood is equivocal. Researchers examining this relationship report mixed findings, with some finding no relationship (Mahoney & Vest, 2012) and others that participation is associated with less substance use in emerging adulthood (Carlo, Crockett, Wilkinson, & Beal, 2011). These differences may be due to differential effects of participation on substance use by participation trajectory. More research is needed to

examine how adolescent trajectories may be associated with young adult substance use.

**Educational outcomes.** Researchers have found that adolescents who participate more in organized activities have higher rates of college attendance compared to less participation (Gardner, Roth, & Brooks-Gunn, 2008). These studies, however, included only educational status a few years after high school in nationally representative samples. Few researchers have investigated adolescent OAP and young adult educational attainment among understudied subgroups of youth, such as those living in urban, disadvantaged communities. Fewer yet have examined how distinct trajectories of participation during adolescence may be associated with educational attainment in young adulthood.

## Current Study

In the current study, we address these gaps in the literature by investigating the relationship between OAP during adolescence among a sample of young adults living in an urban, disadvantaged community and outcomes in young adulthood while accounting for early adolescent functioning. We explore if these outcomes vary depending on distinct participation trajectory subgroup guided by the following hypotheses: (a) Guided by previous research, we expect to find three distinct subgroups of participation trajectories--a low subgroup, a consistent subgroup, and an increasing subgroup; (b) We expect youth who increase participation levels over time will report the lowest levels of depression and highest levels of life satisfaction, followed by the consistent subgroup, and finally the low subgroup; (c) We expect youth in the increasing subgroup will report the lowest levels of substance use, followed by the consistent subgroup, and finally the low subgroup; (d) We expect youth in the increasing participation subgroup will be most likely to report posthigh school education in young adulthood, followed by the moderate and low subgroups.

# METHOD

## Study Context

The current study includes participants from Flint, Michigan. The decline of the manufacturing economy had a strong effect on the life circumstances of people in Flint. In the past 40 years, over 70,000 auto industry jobs have been lost in Flint and surrounding Genesee County, and the population has declined by half. Like many urban communities facing declining populations, the city faces extreme challenges, including high rates of crime and violence. Flint has suffered from higher

unemployment levels compared to state and national averages for well over a decade (Bureau of Labor Statistics, 2014).

## Participants

This study is based on data collected as part of a longitudinal study of youth from middle adolescence to young adulthood. Data were collected from 850 adolescents at risk for dropout at four public high schools in a Flint, Michigan. Youth were eligible to participate in the initial study if they were enrolled in Grade 9 in one of Flint's four main public high schools with a Grade 8 grade point average (GPA) of 3.0 or below and were not diagnosed as having developmental impairments (Zimmerman, Ramirez-valles, Zapert, & Maton, 2000). The study included a 3.0 GPA threshold because the original study focused on high school dropout and substance use. This GPA was used in the selection criteria to ensure the sample was at somewhat higher risk for leaving school before graduation.

Waves 1 through 4 correspond to the participants' high school years. The full sample comprised 52% female, 80% African American, and 18% Caucasian at Wave 1. Mean age at Wave 1 was 14.86 years (standard deviation [SD] = 0.64). To focus on our investigation on OAP among an understudied group of adolescents, we included only African American respondents in our analyses (N = 681 at Wave 1, 49% male). We used Wave 12 data to study young adult outcomes when the participants were in their mid-30s (mean age was 34.09 years, SD = 0.62). Following institutional review board approval and necessary parental consent and participant assent, data were collected during in-school interviews.

## Measures

Descriptive statistics for the measures used in this study are reported in Table 2. All time-invariant variables were assessed at Time 1. OAP was the only time varying variable calculated annually during the four years of high school.

**OAP.** We measured OAP using student-report of behavioral (intensity) and psychological (importance) engagement. Participants were asked annually to list up to four activities each for school, church, and community contexts. Participants rated how often they participated in each activity on a 4-point scale ranging from 1 (*hardly ever*) to 4 (*most of the time*), and rated how important the activity was to them on a 4-point scale ranging from 1 (*not important*) to 4 (*very important*). Nonparticipants were coded as zero. We created a composite score for each activity by multiplying students' reported frequency by importance. We then summed activity scores within and across domains (school, church, and community) to obtain an aggregate participation score. Scores could range from 0 to 192 per year (Wave). The highest score was 119. If a participant, for example, attended an activity "most of the time" (4) and rated it as "very important" (4), then that activity's score would be 16 (4 x 4). A student in the 99<sup>th</sup> percentile of participation was involved in seven of such activities throughout the year. The mean for Wave 1 was 18.87, which could represent

one activity in which the participant is highly engaged and one activity in which a participant is minimally engaged.

### Adult outcomes.

**Depressive symptoms.** We assessed Depressive symptoms using six items from the Brief Symptom Inventory (Derogatis & Spencer, 1982). Response options ranged from 1 (*not at all*) to 5 (*extremely*), according to how uncomfortable in the past week participants were because of loneliness, sadness, lack of interest, hopelessness about the future, thoughts about ending one's life, and feeling worthless. We calculated the depression score as the mean of these six items ( $\alpha = 0.84$ ).

**Life satisfaction.** We assessed life satisfaction using five items from the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). Respondents indicated their level of agreement with statements such as "The conditions of my life are excellent" and "I am satisfied with my life" on a 5-point scale ranging from 1 (*not true*) to 5 (*very true*). We calculated the life satisfaction score as the mean of these five items ( $\alpha = 0.81$ ).

**Substance use.** We calculated substance use as the sum of alcohol, cigarette, and marijuana use reported in the last 30 days. Respondents rated how often they had consumed alcohol and marijuana on a 7-point scale ranging from 1 (*none*) to 7 (*40 or more times*), and cigarettes on a 7-point scale ranging from 1 (*not at all*) to 7 (*2 or more packs per day*). We standardized past 30-day use for each substance variable and summed them.

**Educational attainment.** We assessed educational attainment using a dichotomous measure of any posthigh school training: 0 = high school diploma or less and 1 = any posthigh school training (certificates, an associate's degree, or any college).

### Controls: Sociodemographic and selection bias factors.

**Parent education.** We used the highest reported education level of respondents' parents; items ranged from 1 (*completed grade school or less*) to 7 (*graduate or professional school after college*). If only one parental education score was provided, then we used that score in our analyses.

**Self-acceptance.** We assessed self-acceptance using the Self-Acceptance Scale from the Bentler Psychological Inventory (Bentler & Newcomb, 1978). We calculated the score as the mean of the 4-item scale. Response options to how true pairs of statements are for them, such as "[I am] happy with myself" and "[I am] unhappy with myself," ranged from 1 (*the first statement is true for me*) to 5 (*the second statement is true for me*;  $\alpha = 0.64$ ).

**Eighth-grade GPA.** We included school-reported GPA at the end of Grade 8 as a covariate in the analysis. GPA was measured on a 4-point scale (4.0 = A to 1.0 = D).

## <H2>**Data Analytic Strategy**</H2>

<P>We used growth mixture modeling (GMM; Ram & Grimm, 2009), to model possible heterogeneity among urban youth in OAP with MPlus version 7 (Múthen and Múthen, 2013). For investigating the relationship between latent class trajectories and distal outcomes, we used Vermunt's (2010) three-step approach to independently evaluate the relationship between latent class trajectories and distal outcome variables while accounting for classification error (Asparouhov & Muthén, 2013). A three-step approach helps address some limitations of one-step approaches (estimating measurement and structural models simultaneously), including statistical and conceptual issues that result from undue influence of the distal outcome on measurement model estimation (Asparouhov & Muthén, 2013; Vermunt, 2010).</P>

<P>The first step consists of estimating the latent class trajectory model. In the second step, we exported the posterior probabilities (probability of membership in each latent class) from the GMM in MPlus to assign each respondent to their most likely latent class (modal class assignment; Heron et al., 2013). In step three, we created a multiply imputed posterior distribution for the latent class variable in Stata (Version 12; Asparouhov & Muthén, 2013). Following this, we estimated linear and logistic regression models (depending on the outcome of interest) using the latent class participation trajectory model to predict young adult outcomes while correcting for misclassification (Heron et al., 2013; Vermunt, 2010). To account for prior functioning on each outcome variable, we controlled for early adolescent (Wave 1) psychological functioning (depressive symptoms, and self-acceptance as a Wave 1 control for life satisfaction), substance use, and Grade 9 GPA as a Wave 1 control for educational attainment in each of the step three linear/logistic regression models.</P>

## <H2>**Missing Data**</H2>

<P>We used a full information maximum likelihood approach to address missing data on both time-varying and time-invariant variables in the measurement model for step one of the three-step analysis. To minimize the effects of missing data on our analyses, we imputed participants' outcome values for Wave 11 (obtained approximately 12 months before Wave 12, also during young adulthood) if Wave 12 was missing and Wave 11 was available. This increased the sample for each outcome by approximately 60 participants (~6%). We then compared participants who had missing data on each outcome versus nonmissing on all sociodemographic variables to examine possible differences.</P>



# <H1>RESULTS</H1>

## <H2>Descriptive Statistics</H2>

<P>During Wave 1, 35% of youth participated in organized activities within one domain (school, church, or community), 29% in two, and 12% in three. During Wave 2, 33% participated in one domain, 24% in two, and 11% in three. During Wave 3, 31% participated in one domain, 23% in two, and 9% in three. During Wave 4, 26% reported participation in one domain, 20% in two, and 6% in three. Additional descriptive statistics for participation variables are provided in Table 1.</P>

<P>Youth reported the highest levels of participation in school, followed by church and community domains, and among youth who participated, most reported one activity in the respective domain over the course of the year. Among youth who participated, they reported moderate to high levels of participation intensity and importance. Means, standard deviations, and sample size by wave for the OAP composite variable are provided in Table 2. Participation scores ranged from 0 to 119. Total sample participation across the four waves of data appears to have a fairly consistent, low level across the high school years, with some decline overall from freshman to senior year. Means and standard deviations for sociodemographic and Wave 1 self-selection variables, and outcome variables by Wave 12 are provided in Table 2.</P>

## <H2>Attrition Analysis</H2>

<P>Of the 681 respondents from Wave 1, 364 cases were lost to follow-up by Wave 12 (across all outcome variables, specific number varied by outcome). Attrition analysis indicated a greater proportion of females remained in the study compared to males ( $X^2 = 11.49$ ,  $p = 0.001$ ), and respondents who remained in the sample were slightly older at Wave 1 (mean [ $M$ ] = 14.95 years, standard error [ $SE$ ] = 0.04) than missing respondents ( $M = 14.79$ ,  $SE = 0.03$ ;  $t = 3.40$ ,  $p > 0.001$ ). We found no differences between missing and nonmissing respondents for parent education and Grade 8 GPA or trajectory group membership.</P>

## <H2>Growth Models and Trajectory Classes</H2>

<P>Model building results are provided in Table 3. Our results indicated a three-class solution best fit the data: (a) low initial and decreasing levels of participation (approximately 75% of respondents, hereafter referred to as *decreasing*); (b) moderate initial and consistent levels of participation (approximately 20% of respondents, hereafter referred to as *consistent*); and (c) moderate initial and increasing levels of participation (approximately 5% of the respondents, hereafter referred to as *increasing*). The three-class

trajectory model is depicted in Figure 1{FIG1}, and estimates with covariates are provided in Table 4.</P>

<P>Given the noteworthy proportion of nonparticipants, we explored the class structure when omitting this group (25% from Wave 1). Our results suggested that a three-class model was still the best fit for the data (results not shown). Among sociodemographic and self-selection characteristics, higher Grade 8 GPA was associated with higher odds of membership in the consistent and increasing subgroups versus the decreasing subgroup. Higher parent education was associated with higher odds of being in the consistent subgroup versus the decreasing subgroup. All covariates of class membership were retained in the model for their substantive theoretical value.</P>

<P>We estimated the GMM with self-selection and sociodemographic covariates and class-specific intercept, slope, and residual variances as equal. We then attempted to free class-specific parameters. We also examined exploratory plots of variability around intercept and slope for each class. Freeing slope, intercept, and residual class-specific variances resulted estimation errors, such as a nonpositive definite covariance matrix. The estimation issues and exploratory plots suggested limited within class variability in OAP intercept and slope. Consequently, our models investigating distal outcomes included class-invariant variances for intercepts, slopes, and residuals as this approach best fit the data.</P>

## <H2>**Participation Class Membership and Young Adult Outcomes**</H2>

<P>Following our examination of latent class trajectory classes with covariates, we sought to investigate if participation trajectory class membership associated with outcomes in young adulthood while accounting for early adolescent functioning, using the three-step approach described by Vermunt (2010). Results for trajectories classes and adult outcomes are shown in Table 5<zaq;4>.</P>

<H3>*Psychological well-being.*</H3> <P>Youth in the increasing subgroup reported higher levels of life satisfaction in young adulthood than those in the decreasing subgroup. Accounting for Wave 1 self-acceptance, participants in the increasing subgroup reported life satisfaction scores 0.5 points higher in young adulthood than those in the decreasing subgroup. We found no differences in life satisfaction across trajectory subgroups. We also found no differences in depressive symptoms during early adulthood by trajectory class while accounting for Wave 1 depressive symptoms.</P>

<H3>*Substance use.*</H3> <P>Our results indicated that substance use differed in young adulthood by trajectory class. Adolescents in the increasing subgroup reported lower levels of substance use in adulthood compared to those in the decreasing subgroup; for those in the increasing subgroup, substance use was 1.44 points lower than those in the decreasing subgroup. We found no differences in substance use between the consistent and decreasing subgroups.</P>

*Educational attainment.* Our results indicated no differences in young adult educational attainment by participation trajectory subgroup membership while accounting for Wave 1 GPA.

## DISCUSSION

Our study findings indicate that OAP trajectories during high school are associated with young adult outcomes. Adolescents who increased their participation over time may have had greater opportunity to experiences that support positive development (Zaff et al., 2003). These results are consistent with Bronfenbrenner and Morris (2006), who suggest that proximal processes occurring over extended periods of time may be effective in shaping developmental trajectories. Our results support the longer term implications of participation during adolescence and build on previous research with evidence to suggest that the potential positive effects may extend into young adulthood, even after accounting for sociodemographic, self-selection factors, and early adolescent functioning (Gardner et al., 2008; Mueller, Phelps, et al., 2011). Participation may be especially beneficial for youth living in urban, disadvantaged contexts, who are more likely to experience risks compared to youth living in higher resource areas (Patton et al., 2012).

*Psychological well-being.* The more favorable life satisfaction outcomes found among the increasing subgroup compared to the decreasing subgroup may be because of opportunities to enhance developmental assets. Adolescents involved in activities report a greater sense of belonging, higher perceived competence, and more confidence than less involved adolescents (Eccles & Gootman, 2002). Researchers have also found that youth report more positive emotional states when they are involved in organized activities compared to other contexts such as school or unstructured time (Bohnert et al., 2008). Youth who increased their participation over time may have experienced greater exposure to these positive experiences during a developmental period characterized by increasing independence and greater exposure to social and personal stressors, which may be particularly pronounced among youth living in urban, disadvantaged areas (Peck, Roeser, Zarrett, & Eccles, 2008). These results suggest that expanding opportunities for youth activity participation during middle and late adolescence may be beneficial, especially for youth living in high-risk contexts. Participation during this stage may also help build assets that continue to psychological well-being in adulthood.

We did not find differences in depressive symptoms by trajectory subgroup while accounting for adolescent depressive symptoms. This may be because individuals who experience risk factors, from individual (including genetic) to community (e.g., disadvantaged community) may experience these risks over the life span (Rudenstine, 2013). Despite exposure to adolescent promotive factors, youth experiencing depressive symptoms may also be at higher risk for depression in young adulthood.

**<H3>Substance use.</H3>** **<P>**Adolescents in the increasing subgroup reported less substance use in young adulthood compared to youth in the decreasing subgroup. Substance misuse may be of particular concern among young adults living in urban, disadvantaged environments because it may be a coping mechanism for dealing with stressors or trauma present in such contexts (Mulia, Ye, Zemore, & Greenfield, 2008; NIH, 2008). OAP may serve as an important way to build assets and provide opportunities for positive developmental experiences that help reduce the likelihood of substance use during young adulthood. Youth who increase their engagement in activities during middle and late adolescence may be better equipped to handle stressors and avoid substance abuse-related disorders in young adulthood. Adults working with youth experiencing social disadvantage may help bolster long-term prevention efforts through finding ways expand opportunities for youth activity participation during middle and late adolescence that supports PYD and helps build important developmental assets.**</P>**

**<H3>Educational attainment.</H3>** **<P>**Contrary to what other researchers have found, our results indicated that posthigh school educational attainment was not associated with participation trajectories. Our results may differ from prior research because our sample was focused in one geographical area. Past research mostly included nationally representative samples, which may not face the same challenges to postsecondary education as youth from urban, disadvantaged areas (Gardner et al., 2008). Another explanation for the divergent findings may be that past researchers focused on a specific type of participation (e.g., civic participation) that may be more predictive of educational outcomes in adulthood (Chan, Ou, & Reynolds, 2014). This suggests that specific types of participation may be more predictive of later educational attainment rather than participation across multiple contexts, and that our results may be most generalizable to lower income urban youth.**</P>**

**<P>**Overall, our results suggest that youth who expand their OAP during high school derive long-term benefits, but this group was also the smallest participation subgroup. Adolescents typically decrease their participate over time, particularly from middle to late adolescence and sustaining or even expanding participation as adolescents transition to adulthood can be a challenge (Lauver & Little, 2005). Competing demands such as family responsibilities, desire for paid employment, lack of interest in activities, and more limited opportunities to engage all may inhibit youth expanding participation over time (Lauver, Little, & Weiss, 2004). Adults working with youth during middle and late adolescence may benefit from structuring activities to meet their diverse and changing developmental needs to help expand behavioral and psychological engagement. Researchers have found, for example, that older adolescents may be more likely to become engaged in programs that help them learn about careers and college and teach them skills related to the future (Greene, Lee, Constance, & Hynes, 2013). Thus, through strategies such as incorporating developmentally relevant content within organized activities, adults may be better positioned to support expanded participation over time.**</P>**

**<P>**We found no differences between the consistent and other subgroups. This may be because, compared to other studies with primarily middle- and upper-class participants, moderate and consistent levels of participation are not sufficient to overcome the contextual

risk factors faced by youth living in urban, disadvantaged communities. This may also be because moderate and consistent levels of participation are relative to other youth also living in the same economically challenged context. Youth living in disadvantaged communities, on average, participate significantly less in organized activities than youth living in more advantaged communities (Pedersen, 2005). In fact, “[U]rban African American youth often spend very little of their discretionary time involved in organized...activities” (Bohnert, Richards, Kohl, & Randall, 2009, p. 587). Consequently, a moderate level of participation may not have offered sufficient exposure to building developmental assets whose effects extend into adulthood.</P>

## <H2>Limitations</H2>

<P>Several limitations of this study should be noted. First, our study was conducted in one middle-sized and economically challenged city, so the results may not be generalizable to young adults more generally. However, this is a critical population to study because organized activities may be particularly beneficial for youth growing up in a context like this, who are at higher risk for negative developmental outcomes and participating less than their higher socioeconomic status counterparts (Pedersen, 2005). Second, the size of our increasing subgroup was small (5% of the sample) relative to the other classes, so statistical power may be an issue in terms of detecting subgroup differences and drawing conclusions across all outcomes. This proportion, however, falls within acceptable range for a latent trajectory class (Jung & Wickrama, 2008) and is substantively meaningful for understanding positive youth development (Mahoney et al., 2003). It is also notable that despite the small sample we found effects suggesting that limited statistical power might explain our results (i.e., a Type II error was not made).</P>

<P>Third, our participation measure itself did not include information about specific categories of activities such as school clubs, sports and after school programs as examined by previous researchers. Although these specific activities have been linked to positive and negative outcomes among youth (Eccles & Gootman, 2002), activity categories have been defined in numerous ways and few researchers have linked specific activities to young adult developmental outcomes (Bohnert et al., 2010). Consequently, we considered OAP more broadly to investigate how distinct participation trajectories across activity contexts were associated with outcomes during young adulthood.</P>

<P>Fourth, although we accounted for relevant sociodemographic and self-selection factors that may influence participation trajectories, other factors may exist that may influence participation during the high school years such as motivation and skill level (Farb & Matjasko, 2012). However, we accounted for several empirically supported factors associated with participation over time to reduce potential biases in the relationship between participation and young adult outcomes.</P>

<P>Finally, although the results suggest that becoming more engaged in activities over time is associated with long-term benefits among youth living in economically distressed contexts, participation may be especially challenging. Contextual barriers

influencing activity availability and accessibility (e.g., lack of safe and reliable transportation, limited number of high-quality programs) may be critical factors influencing youth engagement. Future research that incorporates multicomponent evaluations of activity availability and accessibility, including information from multiple data sources, such as GIS mapping with environmental audits and interactive focus groups (Topmiller, Jacquez, Vissman, Raleigh, & Miller-Francis, 2015), may help us understand barriers to participation. Yet, even considering these challenges, adolescents who were able to expand their engagement over time experienced more favorable outcomes in young adulthood compared to less involved peers.

## Conclusion

These study limitations notwithstanding, our study is one of the first attempts to examine how distinct OAP trajectories in high school are associated with psychological well-being, substance use, and educational outcomes in emerging adulthood. In addition, our study added to our understanding of the developmental effects of participation in several ways. First, we investigated subgroups of participation trajectories during adolescence while accounting for sociodemographic and self-selection factors. Second, we included a measure of OAP that incorporated behavioral and psychological engagement. Third, we examined a range of outcomes in young adulthood, including psychological well-being, substance use, and educational attainment.

Fourth, we investigated the relationship between participation trajectories and young adult outcomes among an understudied group in the participation literature while accounting for early adolescent functioning. Fifth, we used a three-step analytic approach as described by Vermunt (2010) to address issues related to one-step model estimation and three-step approaches that do not account for classification error when using latent trajectory classes to predict distal outcomes. This study supports the long-term promotive potential of OAP and adds to our understanding of processes during adolescence that may be important influences on health and well-being into adulthood.

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<!--HELP: see ecopies for table edits and figure :ENDHELP-->

<<enote>>AQ1: Tables should be cited in the text in consecutive order. Please cite Table 1 before Table 2, or renumber the tables.

<<enote>>AQ2: The designations of the groups/classes seem confusing. Here they are defined as “a low subgroup, a consistent subgroup, and an increasing subgroup” but further down, low initial and decreasing is referred to as *decreasing*, moderate initial and consistent as *consistent*, moderate initial and increasing as *increasing*. Please clarify as needed.

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<<enote>>AQ3: Please define acronyms in Table 3's footnote section.

<<enote>>AQ4: Please revise the asterisks for the p values in both the table and the footnote section per APA style, as follows: Use lowercase superscript letters when referring to a specific note in a particular column, row, or individual entry. Begin with 'c' (other non-APA symbols were revised to a and b).

{TBL1}<TC>Table 1. Descriptive Statistics for Organized Activity Participation by Domain</TC>

<TH>	% Part/mean no. activities <sup>a</sup>	Intensity <sup>b</sup>	Importance <sup>b</sup>
<TB>Wave 1			
School	54.2/1.30	3.25-3.51	3.00-3.40
Church	46.4/1.29	3.24-3.48	3.25-3.48
Communi ty	29.5/1.16	3.20-4.00	3.25-4.00
Wave 2			
School	47.5/1.38	3.38-4.00	3.00-3.26
Church	41.4/1.34	3.00-3.57	3.07-3.80
Communi ty	26.0/1.16	3.15-3.37	3.12-3.33
Wave 3			
School	45.7/1.43	3.45-3.66	3.34-3.66
Church	38.4/1.37	3.24-4.00	3.32-3.75
Communi ty	29.8/1.15	2.66-3.14	2.67-3.37
Wave 4			
School	35.8/1.45	3.30-3.51	3.20-3.45
Church	31.2/1.30	2.66-3.58	2.66-3.60
Communi ty	21.9/1.15	2.79-3.07	3.15-3.50

<TF><sup>a</sup>Percent participating in at least one activity/mean # of activities among youth who reported participation

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<sup>b</sup>Range of mean scores for each activity among youth who reported participation

Table 2. Descriptive Statistics for Study Variables

Time varying	Mean(SD)
Participation <sup>a</sup> Wave 1	18.87 (18.96)
Participation Wave 2	17.05 (18.32)
Participation Wave 3	17.82 (19.30)
Participation Wave 4	14.33 (18.66)
Time invariant	Mean(SD)/proportion yes
<i>Class predictors, Wave 1</i>	
Parent education	4.39 (1.41)
Self-acceptance	4.51 (0.70)
8th grade GPA	2.02 (0.68)
<i>Young adult outcomes, by Wave 12</i>	
Depression (N=361)	1.55 (0.69)
Life satisfaction (N=362)	3.05 (1.02)
Substance use (N=359)	3.76 (2.93)
Educational attainment (post HS training) (N=363)	39.12%

Note. SD = standard deviation.

<sup>a</sup>Participation = sum of intensity x importance for each activity across domains (school, church, community).

Table 3. Fit Statistics for Participation GMM by Class Solution

Model	Log-likelihood	AIC	SSABIC	Entropy	LMR LRT test
1 class (growth model)				n/a	n/a
2 classes	-12371.21	24792.42	24826.05	0.89	199.05
3 classes	-12296.49	24656.99	24700.04	0.89	149.80 <sup>a</sup>
4 classes	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>	<sup>b</sup>

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<TF>Note. LMR LRT test = Lo-Mendel-Rubin adjusted LRT TEST for N-1(Ho) vs. N classes; AIC = ; SSABIC = .

<sup>a</sup>p < 0.05.

<sup>b</sup>4 class model did not successfully converge.

</TF>

{TBL4}<TC>Table 4. Three-Class Model Results</TC>

<TH>GMM Model results	Intercept (SE)		Linear growth (SE)	
Class 1 (Low, decreasing participation group)	15.62 (0.78)		-3.03 (0.27)	
Class 2 (Moderate, increasing participation group)	27.00 (3.32)		13.91 (1.64)	
Class 3 (Moderate, consistent participation group)	32.37 (2.40)		0.26 (0.79)	
<TH>Participation groups compared	Consistent vs. decreasing		Increasing vs. decreasing	
<TB>	Estimate (SE)	OR	Estimate (SE)	OR
<TH>Covariate				
<TB>Male	0.46 (0.24)	1.58	0.11 (0.39)	1.12
Self-acceptance	0.07 (0.19)	1.07	0.67 (0.46)	1.95
8th grade GPA	0.75 (0.23) <sup>a</sup>	2.12	0.53 (0.35)	1.7
Parent education	0.31 (0.09) <sup>a</sup>	1.36	0.44 (0.22) <sup>a</sup>	1.55

<TF>Note. GMM = growth mixture modeling; SE = standard error; OR = odds ratio.

<sup>a</sup>p < 0.05. </TF>

{TBL5}<TC>Table 5. Distal Outcomes by Trajectory Class Membership</TC>

<TH>	Participation groups compared		
Young adult outcomes, by Wave	Consistent vs.	Increasing vs.	Model F-statistic,

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12 <sup>a</sup>	decreasing	decreasing	p-value
<TB>	Coef/OR [95% CI] <sup>b</sup>	Coef/OR [95% CI] <sup>b</sup>	
Psychological well-being			
Depression (N=361)	-0.14[-0.32, 0.04]	-0.32[-0.65, -0.02]	8.21, > 0.001
Life satisfaction (N=362)	0.01[-0.29, 0.32]	0.50[-0.01, 1.01]*	4.03, 0.01
Substance use (N=359)	-0.35[-1.25, 0.54]	-1.44[-2.84, -0.39]*	8.29, > 0.001
Educational attainment (post-HS training) (N=363)	1.15[0.56, 2.35]	2.56[0.84, 7.80]	11.26, > 0.001

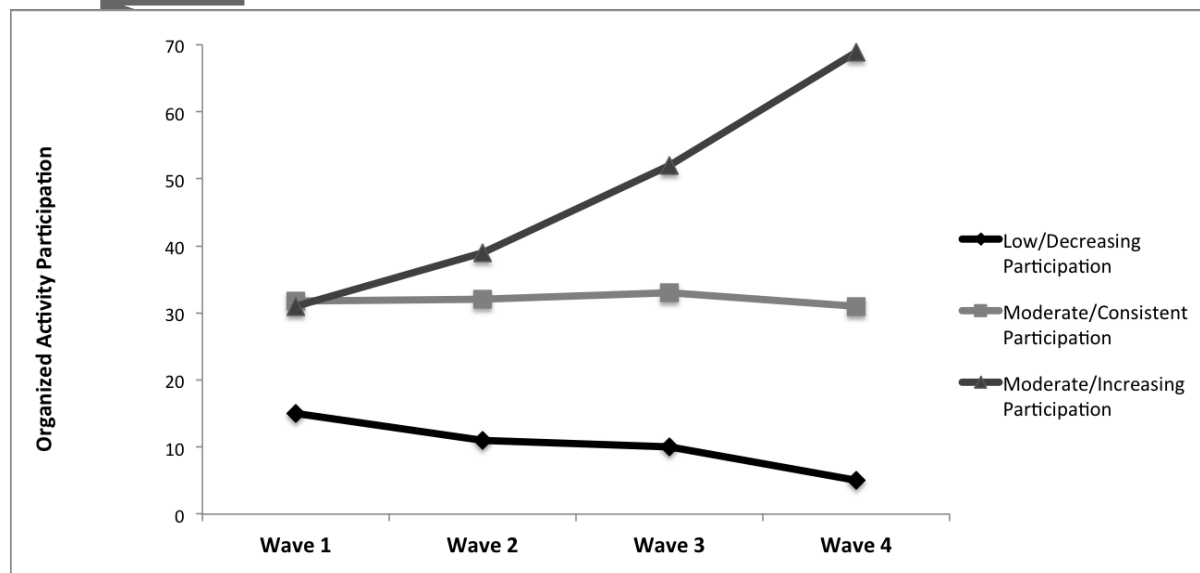
<TF>Note. CI = confidence interval; OR = odds ratio.

<sup>a</sup>Accounting for Wave 1 controls: depressive symptoms, self-acceptance (life satisfaction), substance use, GPA (educational attainment).

<sup>b</sup>Coefficients for continuous variables; OR for dichotomous (educational attainment).

\* $p \leq 0.05$ . \*\* $p \leq 0.01$ .

</TF>



{FIG1}<LEG>Figure 1. Model-estimated means for the three-class latent class growth analysis solution of organized activity participation across the high school years.</LEG>