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Trajectories of Organized Activity Participation Among Urban Adolescents: An Analysis of Predisposing Factors

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Abstract

Organized activity participation provides important opportunities for adolescents to develop assets and resources related to positive youth development. Predisposing factors, in addition to sociodemographics and self-selection factors, may influence how youth participate over time. In this study, we used growth mixture modeling with longitudinal data from African American adolescents attending urban high schools in Flint, MI to identify subgroups of participation trajectories (Wave 1 N=681, mean age at wave 1=14.86 years, 51% female). We measured activity participation using psychological and behavioral engagement across multiple contexts over the four years of high school. We examined how predisposing risk and promotive factors were related to these trajectories, accounting for sociodemographic and self-selection factors. The results indicated three participation trajectories: a low group decreasing over time (74%), a moderate, consistent participation group (21%) and a moderate, increasing group (5%). More substance use was associated with lower odds of being in the moderate/consistent versus low/decreasing participation group. More parental support was associated with lower odds of being in the moderate/increasing versus the moderate/consistent group. Our results suggest that addressing predisposing factors such as substance use may help facilitate participation over time.

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Introduction

Participation in organized activities plays a key role in positive youth development by providing youth with opportunities to learn skills, develop self-confidence, nurture prosocial relationships, and avoid negative developmental trajectories (Gardner, Roth, & Brooks-Gunn, 2008; Mueller, Lewin-bizan, & Urban, 2011). Organized activities refer to a broad range of structured, supervised activities outside the school curriculum in diverse contexts such as schools, churches and community organizations (Bohnert, Fredricks, & Randall, 2010). Organized activity participation presents a unique opportunity for promoting healthy development among adolescents during out-of-school time (Bohnert, Richards, Kohl, & Randall, 2009). Participation has many benefits for youth, both short and long term. In the short term, organized activity participants have lower school dropout and criminal offending rates compared to non-participants (Mahoney, 2000). In the long-term, researchers have found an association between participation during adolescence and positive outcomes in emerging adulthood (ages 18-25), including higher occupational status and fewer negative outcomes such as substance use, compared to limited or no participation (Mahoney, Cairns, & Farmer, 2003; Zaff, Moore, Papillo, & Williams, 2003). Although some negative effects have been associated with specific types of activity participation (e.g., increased alcohol use among sports participants), researchers have generally found support for the promotive effects of participation on youth development (Eccles & Gootman, 2002; Mahoney, Lord, & Carryl, 2005). These promotive effects, however, may vary by how youth participate during adolescence. Yet, we know relatively little about the various trajectories that participation may take over time and factors beyond sociodemographics and self-selection that may help set the course for a more positive or problematic trajectory of participation.

Organized activity participation may be especially beneficial for youth living in socioeconomically disadvantaged, urban environments. Adolescents in living in urban, disadvantaged contexts often face multiple risks that increase the likelihood of negative developmental trajectories (Bohnert, Richards, Kolmodin, & Lakin, 2008; Patton, Woolley, & Hong, 2012). Organized activities may provide vital opportunities to build assets (individual characteristics- e.g., skills) and resources (social and material resources- e.g., supportive relationships) that help support positive development and overcome risk associated with disadvantage (Fergus & Zimmerman, 2005; Fredricks & Simpkins, 2012). Despite the potential benefits, youth living in socioeconomically disadvantaged communities are less likely to participate in organized activities than those living in more affluent communities, often due to resource and access limitations (Pedersen, 2005; Quinn, 1999). Thus, although participation has potential to build promotive factors and offset risks, youth who may derive the most benefit are also be those facing the greatest challenges to participation. Consequently, understanding how developmental risk and promotive factors may influence participation trajectories may be particularly important among young people facing contextual risk.

Theoretical Framework

We used Positive Youth Development (PYD) and the developmental-ecological frameworks to characterize different trajectories of participation and examine the factors that may

influence how youth participate over time. PYD is a developmental systems-based model that emphasizes the plasticity of human development through interactions between the individual and his/her developmental contexts (Lerner, Lerner, & Benson, 2011). Using a developmental-ecological framework (Bronfenbrenner & Morris, 2006), these interactions, called proximal processes, represent key forces shaping adolescent development. Proximal processes are interactions between a person and the immediate environment (contexts) such as school, church and community and experiences within those contexts (Bronfenbrenner & Ceci, 1994). PYD focuses on proximal processes that provide opportunities to develop assets and resources to promote positive developmental trajectories (Fergus & Zimmerman, 2005; Lerner, 2002, 2005). The degree to which youth experience proximal processes within organized activities may depend on multiple dimensions of participation, including behavioral (e.g., activity intensity) and psychological (e.g., activity importance) engagement. Yet, no consensus exists on the best way to operationalize participation, which may include incorporating aspects of behavioral engagement, psychological engagement or both.

Participation Measurement: Behavioral and Psychological Engagement

Researchers debate how to best measure organized activity participation (see Denault & Poulin, 2009a; Farb & Matjasko, 2012). Some researchers have proposed measuring participation using various aspects of behavioral (Farb & Matjasko, 2012) or psychological engagement (Weiss, Little, & Bouffard, 2005). Behavioral engagement may include dimensions such as intensity (frequency of involvement) and breadth (number of specific activities) (Bohnert et al., 2010). Yet, the relevance of each type of engagement may depend on youths' developmental stage. Early adolescents, for example, may be more likely to seek a wider range of participation experiences compared to later adolescence (Busseri & Rose-Krasnor, 2009). In contrast, during mid- to late-adolescence, youth have increasing control over how they spend their time compared to early adolescence (Fredricks & Eccles, 2010). In part because they have more control of their time, adolescents may chose to participate in fewer activities more intensely during high school compared to late childhood/early adolescence (Busseri, Rose-Krasnor, Willoughby, & Chalmers, 2006; Denault & Poulin, 2009b). Thus, when considering developmental issues such as autonomy, intensity of involvement in activities may be particularly meaningful to high-school age youth because participation is largely self-directed (Cobb, 2007). Consequently, intensity of participation may be the most developmentally appropriate measure of behavioral engagement during mid- to late adolescence.

Psychological engagement, how youth perceive the experience of participating and its importance or relevance to them, is another key aspect of organized activity participation (Bohnert et al., 2010). Researchers suggest that psychological engagement or affective investment (e.g., activity importance) is a vital aspect of participation in promoting positive developmental outcomes (Mahoney, Larson, Eccles, & Lord, 2005; Weiss et al., 2005). The degree to which adolescents feel an activity is important to them influences the potential for participation to build assets and resources that promote positive development (Bundick, 2011). In fact, some researchers suggest that psychological engagement may be more important for positive developmental outcomes than time spent participating in activities (Adachi & Willoughby, 2014). Yet, few researchers have incorporated both behavioral and

psychological engagement combined in a single measure when examining organized activity participation among youth. Including both behavioral and psychological engagement may capture multiple dimensions of participation particularly relevant during middle and late adolescence.

Participation Over Time

Although the quantity and quality of time spent in activities influences the role of organized activities in positive development, so too does the temporal aspect of activity participation. The pattern of participation in activities over time may influence the extent to which youth develop assets and resources for positive development (Tudge, Mokrova, Hatfield, & Karnik, 2009). Consistent activity participation over time, for example, may expose adolescents to greater opportunities for building developmental assets and resources compared to low/no participation. Yet, despite the potential developmental implications, few researchers have explored multiple participation trajectories during adolescence. Efforts to investigate distinct participation trajectories may aid our understanding of developmental factors that influence these trajectories over time.

Researchers have found that organized activity participation is dynamic and varies throughout adolescence (Farb & Matjasko, 2012). While some have found that participation generally decreases during the high school years (Denault & Poulin, 2009a), others have found that participation may remain consistent (Zaff et al., 2003) or even increase during adolescence (Mahoney et al., 2003). These inconsistent findings may be explained in several ways. First, given the multitude of approaches to activity participation measurement (Bohnert et al., 2010; Farb & Matjasko, 2012), inconsistencies may be associated with how participation is operationalized. Notably, few use a multidimensional approach that considers both behavioral and psychological engagement even though these factors may change over time. Second, inconsistencies may also be associated with the sample characteristics; some studies include nationally representative samples, others examine primarily white, middle class samples and few include urban, minority samples (Farb & Matjasko, 2012; Lauer et al., 2006). Finally, distinct subgroups of participation trajectories over time may exist. Examining a single pattern or trajectory of organized activity participation assumes that all adolescents within a population follow a similar pattern over time (Jung & Wickrama, 2008). Most researchers who have investigated change in participation over time have used a growth curve modeling approach (GCM); GCM captures individual differences in developmental trajectories (Duncan, Duncan, & Strycker, 2006). Yet, GCM assumes that a single growth trajectory (with variations around those trajectories) will adequately approximate the entire sample population (Duncan et al., 2006). Organized activity participation may be alternatively represented through considering multiple distinct trajectories. Few researchers examining participation have considered that different subgroups of youth may have distinct trajectories of change. Investigating alternative models of change over time may help our understanding of adolescent participation and what factors may be associated with different trajectories.

Factors Influencing Participation Trajectories

Despite the potential of organized activity participation trajectories to influence short- and long- term outcomes among youth, few researchers have examined which predisposing factors, including developmental risk and promotive factors, may influence how youth participate. Yet, in order to effectively investigate the relationship between predisposing factors and participation trajectories, we must also consider sociodemographic and self-selection factors.

Sociodemographics—Among sociodemographic characteristics, researchers have found that youth whose parents have higher levels of education are more likely to participate in organized activities than youth whose parents have less education (Bartko & Eccles, 2003; Linver, Roth, & Brooks-Gunn, 2009). Participation may also vary by sex. Some researchers examining potential sex differences suggest that females generally report higher behavioral engagement in organized activities compared to males, except sports (Eccles, Barber, Stone, & Hunt, 2003), while others suggest no sex differences (Pedersen, 2005). Denault and Poulin (2009b) found, however, that sex was associated with initial levels of behavioral engagement depending on activity (e.g., sports versus school-based clubs) and that sex was not associated with change in participation over time. Thus, it is vital to account for these characteristics when investigating participation trajectory subgroups among adolescents.

Self-selection—Self-selection characteristics are individual-level, empirically supported factors that may influence which students elect to participate (Farb & Matjasko, 2012; Zarrett et al., 2009). Self-selection factors may create selection bias which 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). Self-selection factors, such as self-esteem and academic achievement, may influence participation trajectory and who may be more or less likely to participate (Linver et al., 2009). Adolescents who start high school with higher levels of self esteem, for example, may be more likely to engage in (or select into) organized activities because of the high levels of competition and skill required to participate (Farb & Matjasko, 2012; Linver et al., 2009). Academic achievement may also be associated with self-selection. Researchers have reported consistently a relationship between academic achievement (often measured by GPA) and participation (Linver et al., 2009; Roth, Malone, & Brooks-Gunn, 2010), but most examine academic achievement as an outcome. Some researchers suggest, however, that academic achievement may remain fairly consistent throughout the high school years (Gottfried, Fleming, & Gottfried, 2001; Gottfried, 1985). Consequently, although higher academic achievement is often studied as an outcome of participation (behavioral engagement) (Linver et al., 2009), youth reporting higher levels of organized activity participation may also be more likely than non-participants to do well in school in the first place. Thus, academic achievement may be a self-selection factor associated with organized activity participation.

Predisposing factors—Predisposing factors are variables that may influence youths’ participation in organized activities over time. Predisposing factors are factors that are supported empirically for their potential to shape youth development; these factors may be

risk (i.e., increase likelihood of negative developmental trajectories) or promotive (i.e., support positive developmental trajectories). Although most researchers have investigated the influence of risk and promotive factors on youth outcomes, few have considered how these factors may predict engagement in activities that support positive development.

Risk factors: Substance use, conflict in the family environment and negative behaviors of friends may decrease the likelihood that youth will participate in organized activities over time. Substance use during early adolescence increases the risk of negative outcomes such as violent behavior and educational failure; early substance use may also decrease the likelihood that youth participate in organized activities during mid- to late-adolescence (Catalano, Kosterman, Hawkins, Newcomb, & Abbott, 1996; Windle & Windle, 2009). Thus, in addition to increasing the likelihood of negative outcomes, substance use may also inhibit participation in activities that contribute to developmental assets and resources such as organized activities.

Conflict in the family may also result in less participation over time. Family-related factors are important influences on development, and conflict in the family is associated with negative outcomes among youth such as delinquency, violence and mental health disorders (Cobb, 2007; Kennedy, Bybee, Sullivan, & Greeson, 2010). Many researchers have found a robust link between family conflict and negative outcomes among youth (see Castellani et al., 2014; Choe, Stoddard, & Zimmerman, 2014; Cummings, Koss, & Davies, 2014 for examples), however, few have investigated if conflict in the family may influence trajectories of organized activity participation.

Researchers support a robust link between negative peer behaviors and adolescent behaviors (Dishion, Nelson, Winter, & Bullock, 2004; Steinberg & Morris, 2001). Negative peer behaviors, such as having friends who engage in substance use or violence, increases risk of negative developmental trajectories (Youniss & Haynie, 1992). Peer behaviors may shape other developmental trajectories, including organized activity participation. Researchers have found, for example, that peer behaviors are associated with behavioral engagement (e.g., breadth, intensity) in organized activities among youth (Fredricks & Eccles, 2006; Mahoney & Stattin, 2000). Yet, most researchers exploring the peer-participation relationship have investigated peer relationships as a consequence of activity participation, rather than a predictor. While organized activities play a role in fostering peer relationships (Simpkins, Eccles, & Becnel, 2008), pre-existing peer behaviors, including negative behaviors, may be an important influence on youths' participation trajectories in the first place.

Promotive factors: Developmental promotive factors, like parental support and school attachment, may influence how youth participate over time. Parental support and school attachment are critical promotive factors that may influence participation trajectories during high school. Although family relationships change during adolescence, parents continue to be a vital source of support for youth (Cobb, 2007). Researchers have found that parent-related factors, such as beliefs about organized activities and parents' own extracurricular involvement, influence intensity of activity participation during early adolescence (Denault & Poulin, 2009b). Less studied, however, is the association between parental support and

organized activity participation over time. Parental support may provide youth with encouragement to engage in developmentally promotive pursuits such as organized activities, especially as they become more independent during mid- to late adolescence.

School attachment is another promotive factor that may be associated with patterns of organized activity participation over time. Researchers have found that adolescents who report higher levels of school attachment are more likely to participate in organized activities (specifically school-based) than adolescents with lower levels (Linver et al., 2009; Mcneely, Nonnemaker, & Blum, 2002). Researchers, however, have rarely investigated how school attachment may influence participation trajectories during the high school years.

Most researchers examining risk and promotive factors associated with participation have explored these relationships among primarily White, middle class or nationally representative samples. Consequently, the effects of predisposing factors on organized activity participation over time among adolescents living in urban, disadvantaged contexts are not well understood. Thus, more research is needed examining the influence of predisposing factors on participation trajectories among urban, disadvantaged youth.

Current Study

In the current study, we address existing gaps in the literature by exploring distinct participation trajectories and factors that influence these trajectories. Based on previous research findings examining participation trajectories among youth, we expected to find multiple (at least 3) subgroups or latent classes of participation trajectories during the high school years. Given previous research investigating the effects of predisposing factors on youth development, we expected that risk factors, including substance use, conflict in the family environment and negative behaviors of friends, would increase the likelihood of a low level participation trajectory during the high school years. We also expected that promotive factors, including parental support and school attachment, would increase the likelihood of a higher-level (consistent or increasing) participation trajectory. We examined the effects of predisposing factors on participation trajectories controlling for sociodemographics and self-selection factors.

Our study builds on previous research in the following ways. First, we utilized a measure of participation that is developmentally-informed and incorporates both behavioral and psychological engagement. Second, we examined possible subgroups (classes) of organized activity participation trajectories among adolescents during the high school years. This approach allows the possibility of different growth trajectory subgroups within the larger sample of participants (Jung & Wickrama, 2008). Third, we investigated the influence of predisposing factors on these trajectories while accounting for sociodemographic and self-selection factors related to participation using PYD and developmental-ecological frameworks. Fourth, we examined these trajectories and their correlates among a sample of youth living in an urban, disadvantaged community - an understudied group in the participation literature.

Method

Participants

This study is based on 4-years of data collected as part of a longitudinal study of youth from mid-adolescence (i.e., high school years) to young adulthood. Data were collected from 850 adolescents at-risk for high school dropout at the beginning the ninth grade in four public high schools in a Flint, Michigan. Youth were eligible to participate in the initial study if they were in ninth grade enrolled in one of Flint's four main public high schools with an eighth grade 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 included 52% female, 80% African-American, 18% White at Wave 1. Mean age at Wave 1 was 14.86 years (SD=0.64). In order to focus on our investigation on organized activity participation among an understudied group of adolescents, we included only African American respondents in our analyses (n=681 at Wave 1, 49% male). Following institutional IRB approval and necessary parental consent and participant assent, data were collected during in-school interviews.

Measures

Organized Activity Participation—We measured organized activity participation 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. For each activity, students were asked to report how often they participated using a 4 point frequency scale (1=hardly ever; 4= most of the time) and how important the activity was to them using a 4 point scale (1=not important; 4=very important). Non-participants 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 Wave (the high score would require scores of 16 per activity for 12 activities), but the highest score was 119. Thus, if a participant attended an activity "most of the time" (4) and rated it as "very important" (4) that activity's score would be 16 (4×4). A student in the 99th percentile of participation, for example, was involved in 7 of such activities. In the current study, the mean for Wave 1 was 18.87, which could equate to one activity in which the participant is highly engaged and one activity in which a participant is minimally engaged.

Risk factors

Substance use: We calculated substance use as the sum of alcohol, cigarette and marijuana use reported in the last 30 days. Respondents were asked how often they had consumed alcohol and marijuana from 1=none to 7=40 or more times and cigarettes from 1=not at all to 7=two or more packs per day. To create a sum substance use score, we standardized past 30-day use for each substance and summed them.

Negative behaviors of friends: We calculated negative behaviors of friends as the mean of 17 items asking about the number of friends engaging in negative behaviors. Items were scored from 1=none to 5=all. Sample items include how many of the respondent's friends have used substances at school, been suspended, gotten into fights and carried a weapon (α =0.90).

Conflict in the family environment: We measured conflict in the family environment with 5 items from the Family Environment Scale (Moos & Moos, 1986). Items include how often family members fight, get so angry they throw things, lose their tempers, criticize each other and hit each other in anger from 1 (Hardly ever) to 4 (Often). We calculated the conflict in the family environment score as the mean of these five items (α=0.76).

Promotive factors

Parental support: We measured parental support with 5 items from Procidano and Heller's (1983) Perceived Social Support- Family (PSS-Fa) scale. Participants were asked, for example, if their parents enjoyed hearing what they thought, if they relied on their parents for emotional support and if they had a caring relationship with their parents. Response options ranged from 1 (Not true) to 5 (Very true). We calculated parental support as the mean of the five items (α=0.89).

School attachment: We measured school attachment with 5 items, rated from 1=strongly agree to 4=strongly disagree, about how respondents felt about school (Hawkins, Catalano, & Miller, 1992). Sample items included "I like school" and "I like my classes this year." School attachment was the mean of these 5 items (α=0.70).

Controls: sociodemographic and self-selection factors

Parental education: We used the highest reported education level (from 1=completed grade school or less to 7=graduate or professional school after college) of the respondents' parents. If only one parental education score was provided, we used that score in the analyses.

Self-acceptance: We used the Bentler Psychological Inventory (BPI), Self-acceptance subscale (Bentler & Newcomb, 1978) to measure adolescents' self-acceptance. We calculated the score as the mean of four items, asking the respondent to report how true pairs of statements are for them, such as (I am) happy with myself or unhappy with myself, from 1=the first statement is true for me to 5=the second statement is true for me (α =0.64).

8th grade GPA: Grade point average in this study was at the end of 8th grade, on a 4-point scale. 4.0=A to 1.0=D, summed and divided by the number of classes.

Data Analytic Strategy

We used growth mixture modeling (GMM) to model possible heterogeneity among urban youth in organized activity participation with MPlus version 7 (Múthen and Múthen, 2013). We tested if two or more subgroups, or classes, of participation trajectories existed, with the goal of estimating the optimal class membership for each participant (Duncan et al., 2006).

We followed a model building strategy as suggested by Jung and Wickrama (2008). First, we specified a single-class latent growth curve model, utilizing descriptive analyses of organized activity participation over time, inclusion of linear and quadratic growth terms and comparisons of model fit to determine the optimal functional form (Singer & Willett, 2003). We next specified GMM that constrained within class intercept and slope variances as equal across classes to identify the optimal number of classes without covariates. We doubled the default number of random starts in MPlus to address the issue of local maxima. We then determined the optimal number of classes with covariates. We used theoretical and empirical justification, fit statistics (log-likelihood, Akaike information criterion (AIC) and sample-adjusted Bayesian information criterion (aBIC) values and Lo-Mendel-Rubin adjusted Likelihood Ratio Test (LRT) to compare models to those with one fewer class) and parsimony to determine the number of classes (Jung & Wickrama, 2008). We considered entropy (how well the model predicts individual's class membership) (Ram & Grimm, 2009), successful convergence, interpretability and substantive theoretical meaning of the class structure (i.e., was the class structure consistent with prior research) (Jung & Wickrama, 2008). We rejected classes that were less than 1% (Jung & Wickrama, 2008), not substantively meaningful (i.e., not consistent with theory and previous research) and did not successfully converge. Finally, we freed within class variances of the intercepts, slopes, and residuals to allow for the possibility of heterogeneity across the latent classes (Ram & Grimm, 2009).

Missing Data—We used FIML to address missing data on both time-varying and time-invariant variables. FIML does not impute values into new datasets, but rather estimates parameters based on available complete data and implied values for missing data conditioned on observed data (Schlomer, Bauman, & Card, 2010).

Results

Descriptive statistics

All predictors of class membership were assessed at Time 1. Organized activity participation was calculated annually during the four high school years. Approximately 75% of adolescents participated in at least one school, church or community activity at Wave 1, 67% at Waves 2 and 3, and 50% at Wave 4. 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.

Growth Models and Trajectory Classes

We modeled change in participation over time, with Wave 1 equivalent to the beginning of 9^{th} grade. Mean age at each wave differed by 1 year and thus subsequent waves correspond to the beginning of 10^{th}, 11^{th} and 12^{th} grades. Similar to Coie et al (1995), we used grade as opposed to age among adolescents because grade is more of a social measure of time and thus developmentally appropriate for this age group. Descriptive analyses of participation over time and model building results for the single-class latent growth curve model suggested that a linear growth parameter best fit the data (results not shown). Next, we compared one-, two-, three- and four-class solutions to identify the best fitting model.

Results without covariates (not shown) and with covariates suggested that a three-class model best fit the data. Model building results with covariates are given in Table 2. Latent class trajectories are depicted in Figure 1. The classes consisted of a low-level activity participation class that decreased participation over time (74% of the respondents, n=502), a moderate initial-level class with consistent participation over time (21% of the respondents, n=143) and a moderate initial-level class that increased participation over time (5% of the respondents, n=33). Given the notable proportion of non-participants, we also explored the class structure when omitting this group (25% from Wave 1). Our results still suggested that a 3-class model best fit the data (results not shown).

Following estimating the GMM with covariates and within class intercept, slope and residual variances set as equal, we investigated releasing the equality constraint to allow each parameter to vary across classes. All combinations of releasing these equality constraints resulted in issues with parameter and standard error estimation, such as a non-positive-definite covariance matrix. The estimation issues and information from exploratory plots suggested limited within class variability in organized activity participation intercept, slope and residuals. Consequently, our models moving forward included within class intercept, slope and residual variances constrained to be equal as this approach best fit the data.

Predictors of Class Membership

Three-class model estimates with covariates are provided in Table 3. The coefficients in Table 3 represent the change in log odds/odds of membership in a given class relative to the comparison or reference class, in this case the consistent participation group. Among demographic (sex and parental education) and self-selection (self-acceptance, 8th grade GPA), higher parental education was associated with lower odds of being in the low/decreasing versus moderate/consistent participation groups and higher self acceptance was associated with higher odds of being in the moderate/increasing versus moderate/consistent group. A higher 8th grade GPA was associated with lower odds of being in the low/decreasing versus moderate/consistent participation group. Among risk factors, higher substance use was associated with higher odds of being in the low/decreasing versus moderate/consistent participation group; a one unit increase on the 30-day substance use scale was associated with a 21% increase in the odds of being in the low/decreasing versus moderate/consistent participation group. Among promotive factors, parental support was associated with class membership. Higher levels of parental support were associated with lower odds of being in the moderate/increasing versus moderate/consistent group; for every one unit increase in parental support, the odds of being in the moderate/increasing group compared to consistent group decreased by 55 percent.

Discussion

Participation in organized activities enhances Positive Youth Development (PYD) through providing opportunities to build skills, self-confidence, prosocial relationships and reduce risk of negative outcomes (Gardner et al., 2008; Mueller et al., 2011). Yet, these promotive effects may vary according to different participation trajectories that adolescents may follow. Our study identified different subgroups of participation trajectories and predisposing factors

related to subgroup membership. Guided by PYD and developmental-ecological frameworks, we identify risk and promotive factors that increased or decreased the likelihood of following a particular trajectory, accounting for sociodemographic and self-selection factors.

Overall, our results indicated three distinct trajectories: low initial level, decreasing participation over time (74%); moderate initial level, consistent participation over time (21%); and moderate initial level, increasing over time (5%). These participation classes are consistent with patterns of participation over time reported by other researchers (Denault & Poulin, 2009b; Zaff et al., 2003). Our results suggest that developmental risk and promotive factors may influence the trajectory of participation that adolescents are likely to follow during the high school years. Investigating factors that may influence participation trajectory group membership among youth in this sample contributes to our understanding of how risk and promotive factors may influence participation and, as a consequence, opportunities to promote PYD.

We found that, among predisposing factors, substance use and parental support are associated with participation trajectory subgroup (class) membership. Higher levels of substance use by 9th grade are associated with higher odds of being in the low/decreasing participation trajectory group compared to the moderate/consistent group. Our results suggest that youth who engage in substance use early in adolescence may be less likely to become involved over time in activities that support positive development. One explanation for this finding is that the negative effects of substance use may be multifold. Substance abuse may both increase the odds of negative outcomes and impede opportunities for participation in activities that support positive development (Hawkins et al., 1992; Windle & Windle, 2009). Efforts directed toward substance use prevention and engaging youth in organized activities during early- and mid-adolescence may help increase the likelihood of positive developmental trajectories and reduce risk of detrimental behaviors such as substance use (Fredricks & Simpkins, 2012).

We found that higher parental support was associated with higher odds of moderate/consistent versus moderate/increasing participation class membership. Although this result does not support our hypothesis that adolescents with the highest levels of parental support would also be those who participate the most, one explanation for this finding is that teens who perceive less parental support may become more engaged in organized activities over time to develop other meaningful, supportive relationships (Lerner, 2005; Zimmerman, Stewart, Morrel-Samuels, Franzen, & Reischl, 2011). Furthermore, as youth progress from middle- to late-adolescence, they spend more time outside the home developing other meaningful relationships and may be more likely to perceive support from non-familial adults in settings such as organized activities (Crosby, Santelli, & DiClemente, 2009; Zeldin, 2004). Nevertheless, we should not over-interpret this finding because adolescents in the consistent group did report relatively high levels of parental support.

Contrary to our hypothesis, negative behaviors of friends, conflict in the family and school attachment were not associated with trajectory class membership. Our finding regarding negative behaviors of friends and conflict in the family, although surprising, is consistent

with what some other researchers have found when examining risk factors and their relationships with positive and negative domains (Simpkins et al., 2008). Fuligni et al (2001), for example, found that peer negative behaviors were associated with more problem behaviors, but not with academic achievement. Thus, we may expect that some developmental risk factors increase the likelihood of negative outcomes, but may not always have a direct (inverse) relationship or any association with positive outcomes.

School attachment was also not associated with participation class membership. One reason for this result may be due to the conceptualization of participation as a multi-context construct. Many researchers who have examined the relationship between school attitudes and participation included only organized activities within school contexts (Linver et al., 2009; Mcneely et al., 2002). Because our measure includes a broader scope of participation including school, our focus may have made the relationship between school connectedness and participation more difficult to detect. Although school attachment may be associated with higher levels of participation, this relationship may be limited to activities within the school context.

Among self-selection factors, adolescents with higher academic achievement had lower odds of belonging to the low/decreasing participation class versus the moderate/consistent participation class. This is consistent with other researchers' findings of an association between academic achievement and participation (Linver et al., 2009; Roth et al., 2010). Youth in this study who had higher GPAs in 8th grade, even among this academically at-risk sample (GPA 3.0 or below), were more likely to be in a higher participation trajectory subgroup. Consequently, our results suggest that youth need not attain the highest levels of academic achievement to increase the likelihood of belonging to a higher participation subgroup. Even moderate levels of academic success may influence the likelihood that youth participate in positive developmental activities over time. Youth-oriented professionals who utilize organized activities to promote PYD, particularly within disadvantaged areas, may focus on elevating academic achievement as a way to encourage the positive relationship between academic success and organized activity participation over time. Thus, through promoting academic achievement, professionals and other adults working with youth may also help youth engage in opportunities to build assets and resources related to PYD through organized activities.

In this study, sex was not associated with participation trajectory class membership. Our results regarding sex are consistent with Pedersen's (2005) findings. One explanation for not seeing sex differences may be because we did not distinguish specific activities within our participation measure. Differences in engagement by sex may be very context specific and depend on the particular social environment and norms of the school, district or region (Barber, Eccles, & Stone, 2001; Hansen, Larson, & Dworkin, 2003). Future research examining possible differences in participation trajectories by sex may benefit from investigating factors related to the social environment in addition to considering differences by specific activities.

Self-acceptance was associated with participation trajectory class membership. Adolescents reporting higher self-esteem were more likely to be in the moderate/increasing versus

moderate/consistent participation group. Adolescents with higher levels of self-esteem may expand participation over time because of the high level of skill potentially required for activities (Farb & Matjasko, 2012; Linver et al., 2009). Adolescents with high levels of skill may have higher levels of self-acceptance, which, in turn, may also make them more prone to increase their engagement (behavioral and/or psychological) in organized activities over time. More in-depth research investigating self-acceptance among all participation subgroups, including ways to increase both self-acceptance and participation among the low/decreasing group, would be a useful program of future research.

Limitations

Several limitations of this study should be noted. First, our study was conducted in one urban location so the results may not be generalizable to other community settings. Yet, this is a critical population to study as organized activities may be particularly beneficial for these youth, who are higher risk for negative developmental trajectories and may participate less than their higher SES counterparts (Bohnert et al., 2008; Pedersen et al., 2005). Second, the size of our moderate/increasing participation class was small (5% of the sample), so power to detect subgroup differences and conclusions regarding factors associated with subgroup membership compared to the other subgroups may be limited (Ram & Grimm, 2009). This proportion, however, falls within acceptable range for a latent trajectory class (Jung & Wickrama, 2008) and is substantively meaningful for understanding PYD (Mahoney et al., 2003). Future research that explores predictors of membership within this trajectory class would be useful because the increasing participation group is among the least studied, and there may be unique considerations for membership within this subgroup. Third, although our participation measure incorporated both behavioral and psychological engagement, this measure may not have captured other aspects of organized activity participation such as breadth. Yet, unlike previous studies, our measure included multiple dimensions of organized activity engagement developmentally relevant for high school age youth. Fourth, our participation measure used an annual report, which may be subject to recall bias. One reason for using a yearlong time frame is to account for the seasonal variations of participation (e.g., school-based activities, sports). Furthermore, our time frame is consistent with other researchers (Bohnert & Garber, 2007; Denault & Poulin, 2009b). Nevertheless, a useful direction for future research is to evaluate intensity at multiple time points throughout the year to account for these seasonal variations (Bohnert et al., 2010). Fifth, our participation measure did not include information about specific categories of activities such as school clubs, sports and arts or delineate activity settings (i.e., church, school and community). Although these specific activities have been linked to positive and negative outcomes among youth (Barber et al., 2001; Eccles & Gootman, 2002), activity categories have been defined in numerous ways (Barber et al., 2001; Denault & Poulin, 2009a; Fredricks & Eccles, 2006). Furthermore, relationships between specific activities or activity settings and developmental outcomes vary depending on features of adolescents included in the sample, activity setting and social context. Thus, results regarding distinct activities and even particular contexts may be very population or community-specific. We chose to emphasize organized activity participation more broadly, which allowed us the opportunity to investigate predisposing and contextual factors that may influence participation across activity types and contexts. Finally, we examined predisposing factors at

a single time point (the start of high school) to explore how these factors influenced participation trajectories. Yet, we may expect those initial levels of predisposing factors to influence subsequent trajectory class membership. A useful direction for future research may be to explore how time-varying covariates are associated with trajectory classes.

Study Contributions

Our results contribute to our understanding of adolescent organized activity participation in several key ways. First, we constructed a measure of organized activity participation that included both behavioral and psychological engagement. Second, we investigated possible subgroups of participation trajectories during the high school years. Third, we examined possible predictors of participation trajectory class membership including risk and promotive factors in an understudied subgroup of adolescents. Fourth, we accounted for important sociodemographic and self-selection characteristics associated with organized activity participation. In the final analysis, our results support heterogeneity within trajectories of organized activity participation. Our results also suggest that predisposing developmental risk and promotive factors may influence the likelihood that an adolescent would belong to a particular participation trajectory subgroup. Consequently, our study provides useful insights regarding predisposing factors that may influence trajectory class membership. This information may be helpful for creating opportunities for organized activity participation. Another contribution of this study is that we analyzed these issues among adolescents living in an urban, disadvantaged context who are understudied in the participation literature. A useful next step for this research would be to examine how participation trajectory class membership may influence long-term outcomes associated with organized activities such as substance use, educational and employment related outcomes, and psychological well-being.

Conclusions

Organized activities are central developmental settings for adolescents that support Positive Youth Development (PYD) and may help offset risk exposure (Fredricks & Simpkins, 2012; Lerner et al., 2011; Mahoney, Larson, et al., 2005). Organized activity participation trajectories may influence the degree to which participation affects positive development (Darling, 2005; Mahoney et al., 2003; Zaff et al., 2003). Our results suggest three distinct participation trajectories during the high school years among adolescents living in an urban, disadvantaged context: low and decreasing (74%), moderate and consistent (21%), and moderate and increasing (5%). Our results indicate that predisposing, sociodemographic and self-selection factors may influence the likelihood of youth following a particular participation trajectory. We found that higher levels of substance use were associated with lower odds of membership in the moderate/consistent participation trajectory group versus the low/decreasing trajectory group. Risk factors, such as early substance use, may hinder youths' involvement in organized activities. Our results suggest that incorporating programs to address risk, such as substance abuse prevention programs, may help facilitate organized activity participation over time among youth living in urban, disadvantaged contexts.

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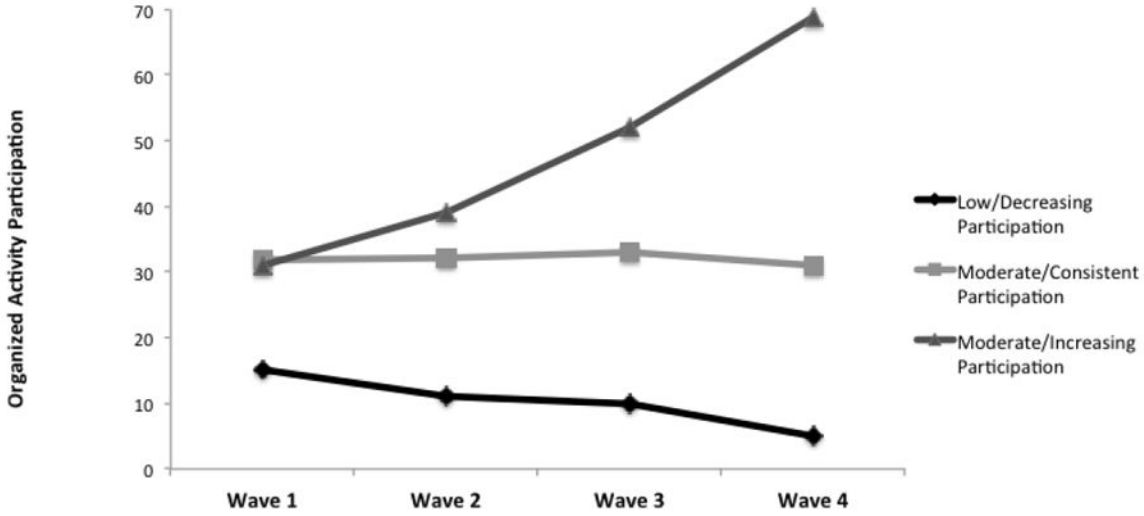

Figure 1.

Model-estimated means for the three-class latent class growth analysis solution for organized activity participation, Wave 1-4 corresponding to the high school years

Table 1

Descriptive statistics for study variables

Time-varying ❖	**Mean(SD)**
Participation§ Wave 1 (N=681)	18.87(18.96)
Participation Wave 2 (N=646)	17.05(18.32)
Participation Wave 3 (N=621)	17.82(19.30)
Participation Wave 4 (N=588)	14.33(18.66)
Time-invariant *	**Mean(SD)**
Parental education	4.39(1.41)
Self-acceptance	4.51(0.70)
Substance use	-0.11(2.53)
Friends' negative behavior	1.99(0.69)
Conflict in the family environment	1.73(0.66)
8th grade GPA	2.02(0.68)
Parental support	3.94(1.03)
School attachment	2.88(0.70)

❖Response rate (Wave 1-4)= 86.3%;

§Participation= sum of intensity × importance for each activity;

*Time-invariant: measures from Wave 1

Table 2

Fit statistics for participation GMM by class solution

Model	Log-Likelihood	AIC	SSABIC	Entropy	LMR LRT test
1 class (growth model)	-12303.24	24670.48	24713.49	n/a	n/a
2 classes	-12210.63	24481.27	24521.59	0.88	211.78
3 classes	-9802.26	19670.51	19713.07	0.89	156.72 *
4 classes	***	***	***	***	***

* p<0.05;

LMR LRT test: Lo-Mendel-Rubin adjusted LRT TEST for N-1(Ho) vs. N classes

*** 4 class model did not successfully converge.

Table 3

Three class model results

GMM Model results	**Intercept (SE)**		**Linear growth (SE)**		
Class 1 (Low/decreasing participation group)	15.3(0.75)		-3.22(0.25)		
Class 2 (Moderate/increasing participation group)	24.48(3.32)		14.46(1.37)		
Class 3 (Moderate/consistent participation group)	30.55(2.26)		0.67(0.74)		
Participation subgroups compared	**Low-Consistent**			**Increasing-Consistent**	
Predictor	**B**	**SE**	**OR**	**B**	**SE**	**OR**
Demographic & self-selection						
Sex◆	-0.36	0.25	0.70	-0.25	0.46	0.78
Parental education	-0.30**	0.10	0.74	0.07	0.21	1.07
Self-acceptance	0.22	0.18	1.25	0.91*	0.44	2.49
8th grade GPA	-0.57*	0.23	0.56	-0.32	0.39	0.73
Risk factors						
Substance use	0.19**	0.07	1.21	-0.09	0.14	0.91
Friends' negative behavior	0.12	0.21	1.01	-0.61	0.39	0.54
Conflict in the family environment	0.04	0.24	1.04	-0.93	0.56	0.40
Promotive factors						
Parental support	-0.29	0.16	0.75	-0.80**	0.26	0.45
School attachment	-0.37	0.21	0.69	0.02	0.36	1.03

*p<0.05

**p<0.01,

◆females: reference group