HHS Public Access

Author manuscript

J Youth Adolesc. Author manuscript; available in PMC 2019 October 01.

Published in final edited form as:

J Youth Adolesc. 2018 October ; 47(10): 2231–2242. doi:10.1007/s10964-018-0868-8.

More Than Just Keeping Busy: The Protective Effects of Organized Activity Participation on Violence and Substance Use Among Urban Youth

Andria B. Eisman, PhD[1], **Daniel B. Lee, PhD**[2], **Hsing-Fang Hsieh, PhD**[1], **Sarah A. Stoddard, PhD**[3], and **Marc A. Zimmerman, PhD**[1]

[1]University of Michigan School of Public Health Department of Health Behavior and Health Education 1415 Washington Heights, Ann Arbor, MI 48109 USA

[2]Center for Human Growth and Development, University of Michigan 300 N. Ingalls St., Ann Arbor, MI 48109 USA

[3]University of Michigan School of Nursing 400 N. Ingalls St., Ann Arbor, MI 48109 USA

Abstract

Violence and substance use disproportionately affect African American youth in urban, disadvantaged communities. Expanding positive peer and adult connections is a mechanism by which organized activity participation may reduce risk of negative outcomes. We assessed if organized activity participation decreases the likelihood of later negative outcomes through expanding positive social connections using a parallel mediation model (Wave 1: N=681; 50% female; M_{age}=14.86 years; SD = 0.65). We found indirect effects from participation to cigarette use (b = −.04, 95% CI: −.07, −.01) and violent behavior (b = −.04; 95% CI: −.07, −.01) through positive peer connections. We did not find indirect effects through positive adult connections. This may be because of the notable influence of peers on negative outcomes during adolescence. Organized activities can help youth expand positive peer connections, which, in turn, reduces risk of later negative outcomes. Implications for prevention are discussed.

Correspondence concerning this article should be addressed to Andria B. Eisman, Department of Health Behavior and Health Education, School of Public Health, University of Michigan, 1415 Washington Heights, Ann Arbor, MI 48109-2029. aeisman@umich.edu, phone: 734-647-6979, fax: 734-763-7379.

Authors' contributions

AE conceived of the study, conducted statistical analyses and drafted the manuscript. DL assisted with statistical analyses, contributed to the methods and analysis sections, assisted with study concept and edited the manuscript; HH assisted with additions for revisions, contributed to methods section with a focus on measurement and edited the manuscript; SS assisted with structure of manuscript draft, addressing feedback and edited the manuscript; MZ collected original data for study, contributed to study design and measurement, and assisted with manuscript drafting and editing. All authors read and approved the final manuscript.

Data sharing declaration

Some of the data analyzed in the current study are available in the Inter-university Consortium for Political and Social Science Research (ICPSR) repository, https://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/34598

Conflicts of Interest

The authors report no conflict of interests.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent (parental consent and participant assent) was obtained from all individual participants included in the study.

Introduction

Numerous health problems related to violence and substance use disproportionately affect African American youth in urban, socioeconomically challenged communities. Violence, the intentional use of threatened or actual physical force or power, is a persistent cause of death and disability among adolescents, particularly among racial and ethnic minorities living in racially segregated areas with concentrated disadvantage (Centers for Disease Control and Prevention (CDC), 2017a; Fingerhut, Ingram, & Feldman, 1992; Krug, Mercy, Dahlberg, & Zwi, 2002). Homicide is the leading cause of death for African Americans aged ten to twenty-four years (CDC, 2010). Substance use is also a persistent problem among youth (Johnston, Bachman, & O'Malley, 2013). Although young people with a history of marginalization, trauma and/or socioeconomic disadvantage report generally lower levels of use for some substances (e.g., alcohol), they are among those at greatest risk of substance abuse with limited access to resources for treatment and prevention (Institute of Medicine, 2015; Kann et al., 2016). Late adolescence marks the time of life when substance abuse, and related consequences, such as violence, are the highest (SAMHSA, 2014). Consequently, this developmental period represents an especially vulnerable time for *preventable* non-fatal injury and death. Building protective factors that reduce risk of substance use and violent behavior during this developmental period is critical to improving the health and well-being of youth. Opportunities to build protective factors may be especially critical for youth living in socioeconomically challenged communities who experience disproportionately individual and contextual risk that increases the likelihood of negative outcomes.

Historically, researchers and policy makers have used a deficit-based approach, focused exclusively on reducing negative exposures to decrease the likelihood of negative outcomes such as substance use and violent behavior (Benson, Mannes, Pittman, & Ferber, 2004). Yet, as Pittman and colleagues note, "problem free is not fully prepared" (Pittman, Irby, Tolman, Yohalem, & Ferber, 2003, p. 6). Researchers, practitioners and policy makers have increasingly adopted a positive youth development perspective to promote healthy development and prevent negative outcomes among youth. Positive youth development is a developmental systems-based model that emphasizes the plasticity of human development through interactions between the individual and his/her developmental contexts (Geldhof, Bowers, & Lerner, 2013). Positive youth development emphasizes assets that support positive developmental trajectories among youth, including positive social connections (Benson, Scales, & Syvertsen, 2011). Organized activity participation is one important way that youth build assets that have long-term, positive effects on development.

Organized Activity Participation and Youth Outcomes: Mechanisms of Influence

Participation in structured, supervised activities is a valuable opportunity to expand youths' positive social environment through building connections with positively-oriented peers and adults (e.g., peers focused on getting good grades) and may be an effective means to offset risk (Gardner, Browning, & Brooks-Gunn, 2012; Martin et al., 2015). Organized activities provide a context in which youth are able to form relationships with peers and other adults characterized by respect, support, guidance and structure (Mcneely, Nonnemaker, & Blum, 2002). Participation in organized activities is generally associated with a positively-oriented

friendship group and fewer associations with antisocial peers (Fredricks & Eccles, 2008; Linver, Roth, & Brooks-Gunn, 2009). Opportunities for expanded positive social connections may be especially important among youth living in urban, low resource communities as they may be most at risk for exposure to violence and delinquency that increase risk of antisocially-oriented social groups and engaging in antisocial behavior (Tolan, Gorman-Smith, & Henry, 2003; Wilson, 2012). Participation in organized activities can offer expanded opportunity to engage with positive peers and adults and, consequently, spheres of positive influence on development. Although researchers have investigated participation extensively among youth, most of this research has focused on outcomes. Empirical investigation of the mechanism by which organized activities influence youth outcomes, such as through expanding positive social connections, has received limited attention (Mueller, Lewin-bizan, & Urban, 2011).

Positive social connections are a robust protective factor for negative outcomes such as substance use and violent behavior. Researchers have found, among urban youth, that activity participation is associated with positive connections with adults (Metzger, Crean, & Forbes-Jones, 2009). Researchers have also found that positive social connections are associated with avoiding harmful behaviors such as violent behavior and substance use (Lerner et al., 2005). Resnick et al. (2004) found that positive connections with non-familial adults were associated with reduced risk of violent behavior among youth. Kogan et al (2005) also found that positive peer affiliations reduced the likelihood of substance use among youth. Taken together, these results support that positive social connections are a primary mechanism by which organized activities reduce risk of negative outcomes. Yet, few researchers have investigated explicitly this mechanism among youth living in an urban, socioeconomically challenged community and if these effects are sustained over time.

Organized Activity Participation Measurement

Researchers debate the optimal way to operationalize participation (see Bohnert, Fredricks, & Randall, 2010; Busseri & Rose-Krasnor, 2010; Fredricks & Eccles, 2006a; Rose-Krasnor, 2009) and no consensus exists. One approach is to assess behavioral engagement including intensity (frequency of involvement) or breadth (number of specific activities) (Bohnert et al., 2010). Yet, appropriate measures may depend on youths' developmental stage. For example, youth in middle school are more likely to seek a wide range of activities (i.e., breadth) compared to those high school (Busseri & Rose-Krasnor, 2010). During middle to late adolescence, youth have increasing control over how they spend their time (Fredricks & Eccles, 2010). Consequently, they often participate in fewer activities more intensely during high school compared to middle school (Busseri, Rose-Krasnor, Willoughby, & Chalmers, 2006; Denault & Poulin, 2009). Intensity of involvement in activities may be particularly meaningful to high-school age youth because participation is largely self-directed (Eisman, Stoddard, Bauermeister, Caldwell, & Zimmerman, 2016). Consequently, intensity of participation may be the most developmentally appropriate measure of organized activity participation during the high school years (middle to late adolescence).

Sociodemographic Factors, Participation and Youth Outcomes

Researchers have reported some characteristics that are generally associated with better outcomes among youth, such as socioeconomic status (SES) and academic achievement, may contribute to selection bias in studies investigating organized activity participation. Youth from higher SES families, for example, are more likely to participate in organized activities than youth from lower SES families (Meier, Swartz, & Ryan, 2018). Researchers have also found a robust relationship between academic achievement and participation; those reporting higher levels of activity participation may be more likely than non-participants to do well in school in the first place (Eisman, Stoddard, Bauermeister, Caldwell, & Zimmerman, 2017; Roth, Malone, & Brooks-Gunn, 2010). Consequently, it is vital to account for SES and academic achievement to reduce selection bias.

Researchers have found differences in substance use by SES; youth from lower SES families may be at higher risk of cigarette use, but at lower risk for alcohol use (Patrick, Wightman, Schoeni, & Schulenberg, 2012). Researchers have reported differences in substance use between adolescent males and females, with males having generally higher rates of substance use (SAMHSA, 2014). Most researchers have found that males generally engage in more peer-to-peer violence, such as physical fights and threats with weapons, than females, although that gap appears to be narrowing (Centers for Disease Control and Prevention (CDC), 2015, 2017b). Overall, these results suggest that sociodemographic factors may be associated with violent behavior and substance use, and it is critical to account for these potential differences.

Current Study

In the current study, we investigate two specific mechanisms by which organized activity participation during early high school (i.e., freshman year, approximately ages 14-15 years) operates on violent behavior and substance use among at-risk youth in late high school (i.e., senior year, approximately ages 17-18 years). Thus, we test a parallel mediation model that examines the protective effects of organized activity participation on violent behavior and substance use among urban youth presented in Figure 1. A parallel multiple mediator model includes multiple mediators that can operate simultaneously and are correlated, but do not necessarily *causally* influence each other (Hayes, 2013). We expect that participation at Wave 1 (equivalent to the first year of high school) will be positively associated with positive peer and adults connections at Wave 2 (equivalent to the second year of high school). We also expect that connections with positively-oriented peers and adults will be negatively associated with substance use (cigarette and alcohol use) and violent behavior at Wave 4 (equivalent to the senior year of high school). Finally, we expect that connections with positive peers and adults will simultaneously mediate the relationship between organized activity participation at Wave 1 and youth outcomes at Wave 4, including alcohol and cigarette use, and violent behavior.

Methods

Research Context

The current study includes participants from Flint, Michigan. The city of Flint has seen much economic prosperity and misfortune throughout the years. Transitioning from a manufacturing to service economy has had a strong effect on the life-circumstances of young people in Flint. At one time, because of high-paying manufacturing jobs, Flint and surrounding Genesee County was one of the most affluent metropolitan areas in the U.S. In the past 40 years, over 70,000 auto industry jobs have been lost, and the population has declined by half (Scorsone & Bateson, 2011; Taylor, 2016). Like many urban Michigan communities facing declining populations, the city faces extreme economic and health challenges, including high rates of crime and violence. Flint has been ranked as the most violent city over 100,000 in the U.S. (Weigley, Hess, & Sauter, 2013), has suffered from higher unemployment levels compared to state and national averages for well over a decade (Bureau of Labor Statistics, 2014) and is ranked as one of the most racially segregated cities in the U.S. (CensusScope, 2000). During the study period, over 90% of students in the Flint City School District received free/reduced lunch during the following school year, and over 30% of families with children under 18 are below the poverty level (Michigan Department of Education, 2017; US Census Bureau, 2015). The baseline sample for the initial study includes 679 African American youth (80%), 145 white youth (17%) and 26 mixed African American and white youth (3%). The high percentage of African American adolescents makes our sample unique because most studies of organized activities as protective mechanisms for adolescent outcomes, including violent behavior and substance use, consist of predominantly White samples.

Participants

We evaluated data during the high school years (Waves 1-4) from a multi-year longitudinal study of youth that spanned from mid-adolescence to young adulthood. Youth were eligible to participate in the initial study if they were in ninth grade, enrolled in one of Flint, Michigan's four main public high schools with a grade point average (GPA) of 3.0 or below in eighth grade and were not diagnosed by the school as having emotional or developmental impairments (Ramirez-Valles, Zimmerman, & Newcomb, 1998). The 3.0 maximum GPA criteria was used because the original study was about high school dropout and substance use, and GPA was used to ensure the sample was at somewhat higher risk for leaving school before graduation. We sought to focus on our investigation on organized activity participation among an understudied group of adolescents; consequently our analysis included only African American respondents (n=681 at Wave 1, 49% male) (Eisman et al., 2016). Following institutional IRB approval and necessary parental consent and participant assent, data was collected during in-school interviews. Data was collected annually, and Waves 1 through 4 correspond to the participants' high school years.

Measures

Organized activity participation (Wave 1).—We measured organized activity participation using student-report of behavioral engagement measure (intensity of participation). Participants were asked about involvement in organized school, church and

community-based activities during out-of-school time. They were asked to list up to four extracurricular activities each for school, church and community contexts (e.g., in the last year, have you participated in any school clubs, sports, or other extracurricular activities? If so, please provide the name of each activity) for up to 12 total activities. For each activity listed, youth were asked to report how often they participated in each activity using a 4-point frequency scale (1=hardly ever; 4= most of the time). We assessed aggregate intensity of participation by summing the intensity scores for each activity across school, church and community contexts. Scores could range from 0 (no participation) to 48 (most of the time for 12 activities).

Positive adult and peer connections (Wave 2).

Positive adult connections.: We assessed extent of connections with adults engaging in positive behaviors by asking participants how many non-household adults they knew who do the following: 1. attend church regularly, 2. volunteer at church or other organizations, and 3. attended (or currently attend) trade school or college, from 1=none to 4=all. We used these three items as indicators for a latent factor in our models (α=.72).

Positive peer connections.: We assessed extent of connections with peers engaging in positive behaviors by asking participants how many of their friends do the following: 1. participate in school clubs/athletics, 2. get all A's and B's, and 3. plan to go to college, from 1= none to 5= all. We used these three items as indicators for a latent factor in our models (α=.68).

Outcomes: Violent behavior and substance use (Wave 4, Wave 1 controls).

Violent behavior.: We assessed violent behavior using five items with youth indicating how often they had engaged in each behavior during the preceding 12 months. The violent behaviors included the following: 1. hurting someone badly enough to warrant medical attention, 2. getting into fights in school, 3. getting into fights out of school, 4. group fighting, and 5. gun carriage from 1= none to 5= four or more times. We calculated violent behavior as the mean of the 5 items (α=.79) and included it as an observed variable of outcome. This measure has been used previously in several published reports with good reliability and validity (Assari, Caldwell, & Zimmerman, 2014; Stoddard, Zimmerman, & Bauermeister, 2011; Xue, Zimmerman, & Cunningham, 2009).

Substance use.: Measures for cigarette and alcohol use were adapted from the Monitoring the Future study (Johnston, O'Malley, & Bachman, 1994). We assessed lifetime cigarette use by asking participants how often they had ever engaged in cigarette use from 0= never to 3= regularly. We assessed past 12-month alcohol use by asking participants how often they had alcoholic beverages from 0= none to 3= 20 or more times. We included cigarette use and alcohol use as observed variables in the final models.

Sociodemographics (Wave 1).—Gender was coded 0/1 (female/male). The original questionnaire included multiple racial categories: African American, White, and Mixed African American and Other, but we included only African American youth as they are understudied in the participation literature and their life experiences may be quite different

from their White or mixed-race counterparts. We measured family socioeconomic status (SES) with the Occupational Prestige Score (Nakao & Treas, 1990) that considers both parental education and type of employment. For this study, we obtained an average prestige score for each of the 20 major occupational categories listed by Nakao and Treas (1990). The highest occupational group received a score of 64.38 (equivalent to professional/ specialty) and the lowest group received a score of 29.28 (equivalent to private household work). We also included reported school GPA at the end of 8th grade as a covariate in the analysis. GPA was measured on a 4-point scale (4.0=A to 1.0=D).

Data Analytic Strategy

We used structural equation modeling (SEM) to test a parallel multiple mediator model investigating the relation between organized activity participation and youth outcomes (violent behavior and substance use) through simultaneous examination of connections with peers and non-familial adults engaging in positive behaviors. The statistical analysis was performed using MPlus version 8.1 (Múthen and Múthen, 2012-2017). We followed the model building strategy guided by Kline (2014). First, we examined the measurement model for all latent factors using confirmatory factor analysis. Following investigation of the measurement model, we examined the structural regression model investigating relations between organized activity participation during Wave 1 (equivalent to freshman year in high school), connections with adults and peers engaging in positive behaviors (Wave 2) and youth outcomes during Wave 4, equivalent to senior year of high school. We were interested in examining the potential sustained effects of participation during a developmental period characterized by a notable increase in behaviors such as violent behavior and substance use, when youth occupy a wide array of social spaces beyond their familial context; these new, expanded social spaces can influence vulnerability to substance use and violent behavior (Arnett, 2000). We ran separate models for violent behavior, cigarette use, and alcohol use. We investigated possible trajectories in our variables of interest (e.g., participation and positive social connections) to verify that our analytic approach (i.e., investigating positive social connections at one time point) was suitable and fit the pattern of the data. That is, a non-significant slope in our predictors of interest would indicate that the constructs are stable over time, and that one-time measurement period can represent participation and social connections during the subsequent time points. We evaluated model fit indices using χ^2, Comparative Fit Index (CFI) values and Standardized Root Mean-Square Error of Approximation (RMSEA) with the associated 90% confidence interval. We compared nested models (e.g., with and without direct effects) using the χ^2 difference test and accounted for sociodemographic (e.g., SES) and other factors (e.g., academic achievement) in the models.

We used full information maximum likelihood (FIML) to address missing data and conducted tests of selective attrition as needed to explore if those lost to follow up and with missing data on outcomes differed from those retained. We used resampling with confidence intervals to assess the significance of model indirect effects. We incorporated bias-corrected bootstrapping to account for asymmetry and non-normality in the sampling distribution in order to estimate parameters that are more accurate than when estimates based on normal theory CIs/symmetrical sampling distribution are used (Hayes, 2013; MacKinnon, 2008).

Finally, we report model coefficients, direct, indirect and total effects in their unstandardized and unstandardized form.

Results

Descriptive Statistics

Table 1 includes means and standard deviations for all observed and indicator variables. Among these youths, 76% reported participating in at least one school, church or community activity. Mean activity participation intensity score for Wave 1 was 5.32 (SD: 4.37). The mean age at Wave 1 interview was 14.86 years (*SD* = .65). Fifty-three percent of respondents reported at least one instance of violent behavior at Wave 4. Fifty-four percent of respondents reported any alcohol use in the past 12 months and 53% of respondents smoking cigarettes at least once in their lifetime at Wave 4. Correlations between outcome variables are as follows: violent behavior and cigarette use=.21, violent behavior and alcohol use=.35, cigarette and alcohol use=.41. We also investigated possible differences in our outcomes of interest by those who did and did not participate (coded 0/1). Our results indicate that youth who did not participate reported higher levels of cigarette use (t=3.21, p=.001); we found no differences in violent behavior (t=.35, p=.72) or alcohol use (t=1.88, p=.06) between participants/non-participants. We found that participation and connections with peers and adults engaging in positive behaviors were stable (i.e., non-significant slope terms) across the examined time points (Waves 1-4 for participation and Waves 2-4 for connections with peers and adults; results not shown). Consequently, we proceeded with analyses as described below.

Measurement and Structural Models

Our measurement model with positive peer and adult connections latent variables, a two-factor correlated model, demonstrated a good fit with the data (χ^2(df) =4.26(8), p=.83). Fit indices for all structural models are given in Table 2. The parallel mediation models demonstrated a good fit with the data (i.e., RMSEA < .06, CFI ≥ .90). See Table 3 for final structural model results. Consistent with our hypothesis, Wave 1 organized activity participation was associated with more positive peer and adult connections at Wave 2 in all structural models. Extent of connections with positively-oriented peers was associated with less cigarette use and violent behavior at Wave 4. Positive peer connections were not associated with less alcohol use. We found indirect effects from organized activities to violent behavior and cigarette use through connections with positively-oriented peers. We did not find indirect effects linking organized activities to alcohol use via connections with positive peer connections. Extent of positive adult connections was not associated with our outcomes of interest, and we found no indirect effects linking organized activity participation to substance use or violent behavior through connections with positive adults. We did find a notable correlation between the two latent variables, the extent of connections with positively-oriented peers and adults, ranging from .28-.41 (results not shown) in each of the structural models. We found no direct effects from organized activities to any of our Wave 4 outcomes and chi-square difference results (violent behavior: χ^2_D=.31; cigarette use: χ^2_D=.08; alcohol use: χ^2_D=.40) did not meet the threshold for significantly improving model fit (1 df, χ^2_D=3.84 at *p*=. 05). In the interest of parsimony and given that the models

without the direct path from activities to outcomes was consistent with our theoretical framework and hypotheses, our final models did not include this path.

Consistent with previous research, we found that family SES was positively associated with organized activity participation intensity at Wave 1. Academic achievement was positively associated with Wave 1 participation in all models. We also found that males were more likely to participate than females. Males reported more violent behavior (b=.20, $p<.05$, unstandardized) and alcohol use (b=.18, $p<.05$, unstandardized) at Wave 4 than females. Consequently, we accounted for gender differences in the outcome in these models. We found no gender differences in cigarette use at Wave 4.

Although the FIML approach addresses missing data, we also conducted attrition analyses to investigate possible differences between youth excluded and those included in the analyses. More males were lost to follow up at Wave 4 compared to females ($\chi^2=7.45$, $p>.05$), but we found no differences in organized activity participation at Wave 1 between those lost to follow up and those retained in the sample.

Discussion

Participation in organized activities is a promising way to promote positive youth development and, in turn, prevent problem behaviors (Eccles, Barber, Stone, & Hunt, 2003). Our results build on previous research by investigating explicitly two simultaneous mechanisms by which participation in organized activities during middle adolescence influences later adolescent outcomes. Opportunities to expand social networks through building positive connections with non-familial adults and peers is an important asset related to positive youth development. Positive social connections support positive developmental trajectories and aid in preventing problem behaviors, particularly in the context of multiple social structural risk factors for youth in urban, socioeconomically challenged communities (Coleman, 1988; Flap & Volker, 2004).

Our findings suggest that organized activity participation early in high school may help support positive youth development through expanding social networks and increasing connections with positively-oriented peers in mid-adolescence. Our findings also suggest that connections with positive peers are a primary mechanism of influence for the effects of organized activities on youth outcomes during late adolescence, including violent behavior and cigarette use. This result is consistent with developmental approaches that suggest peer influences on youth behaviors expand during middle to late adolescence (Cobb, 2007). Researchers have consistently found that youth who affiliate with peers engaging in negative or harmful behaviors (i.e., violent behavior and substance use) are more likely to engage in negative or harmful themselves (Dishion, Nelson, Winter, & Bullock, 2004; Mahoney, 2000). Yet, the majority of research on peer influences has focused on *negative* peer influences increasing risk of *negative* outcomes (Van Ryzin, Fosco, & Dishion, 2012). Our study adds to current research by examining the longer-term effects of organized activity participation on substance use and violent behavior through expanding connections to *positively-oriented* peers among youth exposed disproportionately to individual and contextual risk.

We did not find that connections to positive adults are a primary mechanism of influence on late adolescent violent behavior and substance use. This may be for several reasons. First, non-family adult connections developed within organized activities may not have persisted once the activity ended. Researchers have found that adult-youth connections within organized activities are most influential on youth outcomes when these connections persist over time (Mahoney, Schweder, & Stattin, 2002). Youth living in socioeconomically challenged communities participate less than their more affluent peers and most do not continue this participation through middle and late adolescence (Eisman et al., 2016). Consequently, they may have fewer opportunities to develop longer-term positive adult connections. Second, youth, when engaging in activities, encounter fewer adults than peers (e.g., a few adults supervising versus multiple peers participating) and consequently may not have had sufficient opportunity to significantly expand these social connections. We found no direct relationship between organized activity participation and youth outcomes. This may suggest that the long-term effects are not in the activity itself but rather the positive social networks and subsequent positive social connections it may help facilitate.

We did not find connections with positive peers or adults as a mechanism by which organized activities influenced alcohol use. This may be because certain types of activities (e.g., sports) increase risk of alcohol use while other types may not (Mays, DePadilla, Thompson, Kushner, & Windle, 2010). Consequently, the effects of various types of activities on alcohol use may have canceled each other out, leading us to find no relationship. In addition, African American youth in disadvantaged communities, versus their more advantaged, White counterparts, report less alcohol use in the first place so the effects may have been more difficult to detect (Patrick et al., 2012). Although we did not find positive adult connections as a mediating mechanism for the relationship between participation and our outcomes of interest, we did find an association between connections with positively-oriented peers and adults. This may suggest that, rather than having more direct, longer-term effects on youth outcomes, adults may be instrumental in guiding and facilitating positive peer connections. In addition, although we did not find mediating effects with our outcomes of interest, connections with positive adults may be an important mediating mechanism for outcomes not evaluated in the current study, such as sexual risk behaviors (Ramirez-Valles et al., 1998).

Implications for Prevention

Our results indicate that participation in organized activities is an effective way to promote positive youth development and reduce risk of negative outcomes among youth living in urban, socioeconomically challenged communities. Government agencies and private foundations have invested significantly in organized activities over the last several decades to support positive youth development and reduce risk of negative outcomes; this research examining specific mechanisms may aid in further tailoring specific features of activities across contexts to support the impact of these investments (Eccles et al., 2003). Our results indicate that substance use and violence prevention efforts may benefit from incorporating a positive youth development-focused approach and integrating explicit components designed to expand youths' exposure to positive peer groups. For example, adults working with youth in organized activities may benefit from specific training on strategies for fostering positive

connections and a positive social environment in the context of organized activities. This may also help adults play a larger role in shaping the social environment and connections to positive peers which support youths' positive development and prevent negative outcomes such as violent behavior and cigarette use. In this way, adults supervising organized activities could foster skills such as collaboration, collective problem solving and effective communication to help build respectful and supportive connections.

Our results also suggest, consistent with other researchers, that encouraging involvement in organized activities offered through schools, faith-based and community organizations may help reduce risk of detrimental behaviors, such as violent behavior and cigarette use, in addition to supporting positive developmental outcomes (Fredricks & Simpkins, 2012). Despite these benefits to participation, researchers have also found that youth living in urban, disadvantaged communities generally have lower levels of participation in organized activities than their more affluent counterparts due to multiple factors including resources, logistical challenges and competing demands (Pedersen, 2005). Identifying strategies to promote participation and address barriers, such as accessibility, for youth living in urban, disadvantaged communities is critical to fostering healthy development for all youth. Yet, addressing these barriers continues to be a significant challenge as schools and other organizations hosting these activities are often under resourced (Pedersen, 2005). Government and other agencies supporting organized activities as a way to promote the health and well-being of youth need consider these barriers when structuring participation opportunities and include provisions to address them such as providing transportation and making the programs low or no cost.

Limitations

Our study was conducted with African American youth in one urban location, so the results may not be generalizable to other subpopulations or community settings. Yet, this is an important population to study as urban youth are most at risk for poor developmental outcomes (Like, 2011). In addition, researchers have not focused extensively on organized activity participation and violent behavior within this subpopulation of youth (Mcneely et al., 2002). Nevertheless, studies of a wider range of the population are necessary to test if the promotive mechanism of participation we found would replicate in other samples. Exclusion of youth demonstrating high academic achievement may limit the generalizability of the current study. Our sampling strategy may compromise the internal validity of the data by limiting the variability in our predictors of interest, especially organized activity participation, as these are youth with high likelihood of facing disproportionate individual and contextual risk factors given the study setting (an urban, segregated, socioeconomically challenged community) and generally engage in low levels of organized activity participation (Larson, Richards, Sims, & Dworkin, 2001). Despite this limited variation, we were able to detect some indirect effects of participation on violent behavior and cigarette use through connections with positive peers. This suggests that we may have been able to find additional effects (e.g., through connections with positive adults) with more variation. Thus, our study may have been a conservative test for the mechanism by which organized activities influences youth outcomes. We also did not examine connections developed specifically within the context of organized activities but focused on positive social

connections more broadly. In addition, we cannot ascertain from our data whether participants had a meaningful relationship with a positive peer or adult and this may have limited our ability to empirically examine the quality of the relationships with positive adults or peers as a mediating mechanism. Although we aggregated characteristics that are commonly observed in positively-oriented peers and adults across contexts to investigate quantity of social connections broadly, it is vital that researchers build on our results by also examining the quality of social relationships. We also did not include items that may have provided additional variation in connections with positive adults (e.g., graduated from college) and peers (e.g., plans to attend trade school) scales which may have reduced our ability to detect effects. Yet, we did find a relationship between connections with positive peers and violent behavior as well as cigarette use, despite this limitation. The current study relied on self-report data of youth behaviors. Given concerns about social desirability bias, youth in the study may have under-reported our outcomes of interest, thus diminishing our ability to detect effects (Tourangeau & Smith, 1996; Tourangeau & Yan, 2007). Despite this limitation, we were able to find an indirect relationship between organized activity participation, violent behavior and cigarette use. We were not able to evaluate the effects of specific activity types on positive connections because we did not have adequate information to determine the type of activity a youth listed. This was primarily because some participants provided limited program description and it was not sufficient information to reliably discern all activity types; for example, participants may have provided the program or group name, without other details. Researchers have, however, reported that the relation between specific activities and youth outcomes may depend on the population and community context studied (Fredricks & Eccles, 2006b; Linver et al., 2009). Finally, our measure of participation included only intensity. Other types behavioral (i.e., breadth, duration) as well as psychological engagement (e.g., affective investment) measures of participation exist. Our measure, however, may be well suited for the participation patterns of youth during the high school years (Busseri & Rose-Krasnor, 2009; Denault & Poulin, 2009).

Conclusion

Organized activity participation provides a valuable opportunity to reduce risk of negative outcomes over time among adolescents through promoting positive youth development. Researchers suggest that one way organized activity participation supports assets related to positive development is through expanding youths' positive social environment and building connections with positively-oriented peers and adults (Gardner et al., 2012; Martin et al., 2015). Yet, few researchers have examined explicitly these mechanisms among youth living in urban, disadvantaged communities. The current study examines the sustained effects of expanding positive social connections with peers and adults among youth at disproportionate risk of detrimental outcomes and low levels of participation. We investigate simultaneously the influence of building multiple developmental assets over time among a subgroup of youth understudied in the participation literature and often with limited opportunities to build these important assets. We found indirect effects from organized activity participation to violent behavior and cigarette use through connections with positively-oriented peers; these results support expanding social connections with positive peers as a key mechanism by which organized activities can reduce risk of negative outcomes. These findings provide

important guidance in informing approaches to enhancing this mechanism through activities youth are already engaging in to reduce risk of future violent behavior and substance use.

Acknowledgements

Funding

This research was supported by the National Institute on Drug Abuse, grant 1R01DA035811 to Marc Zimmerman.

Biographies

Andria B. Eisman is a Research Assistant Professor in Health Behavior and Health Education at the University of Michigan School of Public Health. Her research interests include adolescent and emerging adult health, substance use and violence prevention, risk and resilience among youth living in socioeconomically challenged communities, intervention research in community settings, and implementation research.

Hsing-Fang Hsieh is a Research Investigator Health Behavior and Health Education at the University of Michigan School of Public Health. Her research focuses on examining adolescent resilience, substance use and violence victimization using longitudinal data and cross-domain analysis. Her research also includes understanding health disparities of cancer screening and cancer prevention among racial/ethnic minority populations.

Daniel B. Lee is a Postdoctoral Research Fellow at the Center for Human Growth and Development at the University of Michigan. His research interests include examining the ways in which racism and poverty-related stress shape health behaviors and outcomes among African American youth and emerging adults. His work also focuses on the role of sociocultural protective factors within the context of racism-related stress.

Sarah A. Stoddard is an Assistant Professor in the Department of System, Populations, and Leadership at the University of Michigan, School of Nursing. Her research focuses on adolescent risk and resilience, and how social and environmental factors influence the future orientation, behavior, and health of vulnerable youth. She also studies the application of behavioral, family, and ecological approaches to preventing youth violence and substance use.

Marc A. Zimmerman is a Professor in Health Behavior and Health Education at the University of Michigan School of Public Health. His research interests include the application and development of empowerment theory and the study of adolescent health and resiliency. His research has consistently focused on individual and community risk and promotive factors, resiliency, and community-based research methods.

References

Arnett J (2000). Emerging adulthood: A theory of development from the late teens through the twenties. American Psychologist, 55(5), 469–480. Retrieved from 10.1037/0003-066X.55.5.469 [PubMed: 10842426]

Assari S, Caldwell C, & Zimmerman M (2014). Sex differences in the association between testosterone and violent behaviors. Trauma Monthly, 19(3), 26–32. 10.5812/traumamon.18040

Benson P, Mannes M, Pittman K, & Ferber T (2004). Youth Development, Developmental Assets, and Public Policy In Lerner R & Steinberg L (Eds.), Handbook of Adolescent Psychology: Second Edition (2nd ed., pp. 781–814). Hoboken, NJ: Wiley & Sons 10.1002/9780471726746.ch25

Benson P, Scales P, & Syvertsen A (2011). The Contribution of the Developmental Assets Framework to Positive Youth Development Theory and Practice. Advances in Child Development and Behavior, 41, 197–230. 10.1016/B978-0-12-386492-5.00008-7 [PubMed: 23259193]

Bohnert A, Fredricks J, & Randall E (2010). Capturing Unique Dimensions of Youth Organized Activity Involvement: Theoretical and Methodological Considerations. Review of Educational Research, 80(4), 576–610. 10.3102/0034654310364533

Bureau of Labor Statistics. (2014). Unemployment Rates in the United States. Retrieved January 1, 2015, from http://www.bls.gOv/data/#unemployment

Busseri M, & Rose-Krasnor L (2009). Breadth and intensity: Salient, separable, and developmentally significant dimensions of structured youth activity involvement. British Journal of Developmental Psychology, 27(4), 907–933. 10.1348/026151008X397017 [PubMed: 19994486]

Busseri M, & Rose-Krasnor L (2010). Addressing Three Common Issues in Research on Youth Activities: An Integrative Approach for Operationalizing and Analyzing Involvement. Journal of Research on Adolescence, 20(3), 583–615. 10.1111/j.1532-7795.2010.00652.x

Busseri M, Rose-Krasnor L, Willoughby T, & Chalmers H (2006). A longitudinal examination of breadth and intensity of youth activity involvement and successful development. Developmental Psychology, 42(6), 1313–1326. 10.1037/0012-1649.42.6.1313 [PubMed: 17087563]

CDC. (2010). Youth Violence: Facts at a Glance. Atlanta, GA Retrieved from http://www.cdc.gov/ViolencePrevention/youthviolence/

CensusScope. (2000). Segregation: Dissimilarity Indices.

Centers for Disease Control and Prevention (CDC). (2015). WISQARS. Retrieved March 7, 2018, from http://www.cdc.gov/injury/wisqars/

Centers for Disease Control and Prevention (CDC). (2017a). Youth Risk Behavior Survey. Retrieved June 27, 2017, from http://www.cdc.gov/healthyyouth/yrbs

Centers for Disease Control and Prevention (CDC). (2017b, 8). YRBSS | Youth Risk Behavior Surveillance System | Data | Adolescent and School Health.

Cobb N (2007). Adolescence: continuity, change, and diversity (6th ed.). New York, NY: McGraw-Hill Retrieved from http://mirlyn.lib.umich.edu/Record/002794500 CN - HQ 796 .C5961 1992

Coleman J (1988). Social Capital in the Creation of Human Capital. American Journal of Sociology, 94(1988). Retrieved from http://www.jstor.org/stable/10.2307/2780243

Denault A, & Poulin F (2009). Intensity and breadth of participation in organized activities during the adolescent years: multiple associations with youth outcomes. Journal of Youth and Adolescence, 38(9), 1199–1213. 10.1007/s10964-009-9437-5 [PubMed: 19669900]

Dishion T, Nelson S, Winter C, & Bullock B (2004). Adolescent friendship as a dynamic system: entropy and deviance in the etiology and course of male antisocial behavior. Journal of Abnormal Child Psychology, 32(6), 651–663. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/15648531 [PubMed: 15648531]

Eccles J, Barber B, Stone M, & Hunt J (2003). Extracurricular Activities and Adolescent Development. Journal of Social Issues, 59(4), 865–889. https://doi.Org/10.1046/j.0022-4537.2003.00095.x

Eisman A, Stoddard S, Bauermeister J, Caldwell C, & Zimmerman M (2016). Trajectories of Organized Activity Participation Among Urban Adolescents: An Analysis of Predisposing Factors. Journal of Youth and Adolescence, 45(1), 225–238. 10.1007/s10964-015-0267-3 [PubMed: 25735866]

Eisman A, Stoddard S, Bauermeister J, Caldwell H, & Zimmerman M (2017). Trajectories of organized activity participation among urban adolescents: Associations with young adult outcomes. Journal of Community Psychology, 45(4), 513–527. 10.1002/jcop.21863 [PubMed: 28579654]

Fingerhut L, Ingram D, & Feldman J (1992). Firearm and nonfirearm homicide among persons 15 through 19 years of age. Differences by level of urbanization, United States, 1979 through 1989. JAMA : The Journal of the American Medical Association, 267(22), 3048–3053. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/1588719 [PubMed: 1588719]

Flap H, & Volker B (2004). Creation and returns of social capital: a new research program (Flap H & Volker B, Eds.), Routledge advances in sociology 9 (Vol. 20). Routledge Retrieved from http://books.google.com/books?id=6nzUUVDEp2oC

Fredricks J, & Eccles J (2006a). Extracurricular Involvement and Adolescent Adjustment: Impact of Duration, Number of Activities, and Breadth of Participation. Applied Developmental Science, 10(3), 37–41. Retrieved from http://www.tandfonline.com/doi/full/10.1207/s1532480xads1003_3

Fredricks J, & Eccles J (2006b). Is extracurricular participation associated with beneficial outcomes? Concurrent and longitudinal relations. Developmental Psychology, 42(4), 698–713. https://doi.Org/10.1037/0012-1649.42.4.698 [PubMed: 16802902]

Fredricks J, & Eccles J (2008). Participation in Extracurricular Activities in the Middle School Years: Are There Developmental Benefits for African American and European American Youth? Journal of Youth and Adolescence, 37(9), 1029–1043. 10.1007/s10964-008-9309-4

Fredricks J, & Eccles J (2010). Breadth of Extracurricular Participation and Adolescent Adjustment Among African-American and European-American Youth. Journal of Research on Adolescence, 20(2), 307–333. https://doi.Org/10.1111/j.1532-7795.2009.00627.x [PubMed: 22837637]

Fredricks J, & Simpkins S (2012). Promoting Positive Youth Development Through Organized After-School Activities: Taking a Closer Look at Participation of Ethnic Minority Youth. Child Development Perspectives, 6(3), 280–287. 10.1111/j.1750-8606.2011.00206.x

Gardner M, Browning C, & Brooks-Gunn J (2012). Can Organized Youth Activities Protect Against Internalizing Problems Among Adolescents Living in Violent Homes? Journal of Research on Adolescence : The Official Journal of the Society for Research on Adolescence, 22(4), 662–677. https://doi.org/10.1111/j. 1532-7795.2012.00811.x [PubMed: 23162370]

Geldhof G, Bowers E, & Lerner R (2013). Special section introduction: thriving in context: findings from the 4-h study of positive youth development. Journal of Youth and Adolescence, 42(1), 1–5. 10.1007/s10964-012-9855-7 [PubMed: 23139152]

Hayes A (2013). Introduction to mediation, moderation, and conditional process analysis: a regression-based approach. New York: The Guilford Press Retrieved from http://umichigan.eblib.com/patron/FullRecord.aspx?p=1186800

Institute of Medicine. (2015). Investing in the health and well-being of young adults. Washington, DC: National Academies Press.

Johnston L, Bachman J, & O'Malley P (2013). Monitoring the Future: Questionnaire Responses from the Nation's High School Seniors 2011. Ann Arbor, MI.

Johnston L, O'Malley P, & Bachman J (1994). National Survey Results on Drug Use from the Monitoring the Future Study, 1975–1993. Volume I: Seondary school students Rockville, MD.

Kann L, McManus T, Harris W, Shanklin S, Flint K, Hawkins J, … Zaza S (2016). Youth risk behavior surveillance — United States, 2015. Morbidity and Mortality Weekly Report, 65(6), 1–51. https://doi.org/10.15585/mmwr.ss6506a1 [PubMed: 26766396]

Kline R (2014). Principles and Practice of Structural Equation Modeling, Third Edition Structural Equation Modeling. New York: Guilford Publications Retrieved from http://mirlyn.lib.umich.edu/Record/013984622

Kogan S, Luo Z, Murry V, & Brody G (2005). Risk and protective factors for substance use among African American high school dropouts. Psychology of Addictive Behaviors, 19(4), 382–391. https://doi.Org/10.1037/0893-164X.19.4.382 [PubMed: 16366810]

Krug E, Mercy J, Dahlberg L, & Zwi A (2002). The world report on violence and health. Lancet, 360(9339), 1083–1088. 10.1016/S0140-6736(02)11133-0 [PubMed: 12384003]

Larson R, Richards M, Sims B, & Dworkin J (2001). How urban African American young adolescents spend their time: time budgets for locations, activities, and companionship. American Journal of Community Psychology, 29(4), 565–597. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11554153 [PubMed: 11554153]

Lerner R, Lerner J, Almerigi J, Theokas C, Phelps E, Gestsdottir S, ... von Eye A (2005). Positive Youth Development, Participation in Community Youth Development Programs, and Community Contributions of Fifth-Grade Adolescents: Findings From the First Wave Of the 4-H Study of Positive Youth Development. The Journal of Early Adolescence, 25(1), 17–71. Retrieved from http://jea.sagepub.com/cgi/doi/10.1177/0272431604272461

Like T (2011). Urban Inequality and Racial Differences in Risk for Violent Victimization. Crime Delinquency, 57(3), 432–457. 10.1177/0011128708328442

Linver M, Roth J, & Brooks-Gunn J (2009). Patterns of adolescents' participation in organized activities: are sports best when combined with other activities? Developmental Psychology, 45(2), 354–367. 10.1037/a0014133 [PubMed: 19271824]

MacKinnon D (2008). Introduction to statistical mediation analysis. New York, NY: Lawrence Erlbaum Associates.

Mahoney J (2000). School extracurricular activity participation as a moderator in the development of antisocial patterns. Child Development, 71(2), 502–516. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10834480 [PubMed: 10834480]

Mahoney J, Schweder A, & Stattin H (2002). Structured after-school activities as a moderator of depressed mood for adolescents with detached relations to their parents. Journal of Community Psychology, 30(1), 69–86. 10.1002/jcop.1051

Martin M, Conger R, Sitnick S, Masarik A, Forbes E, & Shaw D (2015). Reducing Risk for Substance Use by Economically Disadvantaged Young Men: Positive Family Environments and Pathways to Educational Attainment. Child Development, 86(6), 1719–1737. 10.1111/cdev.12413 [PubMed: 26307026]

Mays D, DePadilla L, Thompson N, Kushner H, & Windle M (2010). Sports Participation and Problem Alcohol Use. A Multi-Wave National Sample of Adolescents. American Journal of Preventive Medicine, 38(5), 491–498. https://doi.Org/10.1016/j.amepre.2010.01.023 [PubMed: 20409498]

Mcneely C, Nonnemaker J, & Blum R (2002). Promoting School Connectedness: Evidence from the National Longitudinal Study of Adolescent Health. The Journal of School Health, 72(4), 138–146. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12029810 [PubMed: 12029810]

Meier A, Swartz B, & Ryan H (2018). A Quarter Century of Participation in School-Based Extracurricular Activities : Inequalities by Race , Class , Gender and Age ? Journal of Youth and Adolescence. 10.1007/s10964-018-0838-1

Metzger A, Crean H, & Forbes-Jones E (2009). Patterns of Organized Activity Participation in Urban, Early Adolescents: Associations With Academic Achievement, Problem Behaviors, and Perceived Adult Support. The Journal of Early Adolescence, 29(3), 426–442. 10.1177/0272431608322949

Michigan Department of Education. (2017). Free and Reduced Lunch Counts. Retrieved from https://www.mischooldata.org/

Mueller M, Lewin-bizan S, & Urban J (2011). Youth Activity Involvement and Positive Youth Development. Advances in Child Development and Behavior, 41, 231–249. 10.1016/B978-0-12-386492-5.00009-9 [PubMed: 23259194]

Nakao K, & Treas J (1990). Computing 1989 occupational prestige scores. National Opinion Research Center Chicago, IL.

Patrick M, Wightman P, Schoeni R, & Schulenberg J (2012). Socioeconomic Status and Substance Use Among Young Adults: A Comparison Across Constructs and Drugs. Journal of Studies on Alcohol and Drugs, 73(5), 772–782. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3410945/ [PubMed: 22846241]

Pedersen S (2005). Urban Adolescents' Out-of-School Activity Profiles : Associations with Youth, Family, and School Transition Characteristics. Applied Developmental Science, 9(2), 107–127. 10.1207/s1532480xads0902

Pittman K, Irby M, Tolman J, Yohalem N, & Ferber T (2003). Preventing problems, promoting development, encouraging engagement: Competing Priorities or Inseparable Goals? Washington, DC: Washington, DC: Forum for Youth Investment Retrieved from www.forumfyi.org

Ramirez-Valles J, Zimmerman M, & Newcomb M (1998). Sexual risk behavior among youth: Modeling the influence of prosocial activities and socioeconomic factors. Journal of Health and Social Behavior, 39(3), 237–253. [PubMed: 9785696]

Resnick M, Ireland M, & Borowsky I (2004). Youth violence perpetration: what protects? What predicts? Findings from the National Longitudinal Study of Adolescent Health. The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine, 35(5), 424e1-10, 10.1016/j.jadohealth.2004.01.011

Rose-Krasnor L (2009). Future Directions in Youth Involvement Research. Social Development, 18(2), 497–509. https://doi.Org/10.1111/j.1467-9507.2008.00506.x

Roth J, Malone L, & Brooks-Gunn J (2010). Does the amount of participation in afterschool programs relate to developmental outcomes? A review of the literature. American Journal of Community Psychology, 45(3–4), 310–324. 10.1007/s10464-010-9303-3 [PubMed: 20386988]

SAMHSA. (2014). Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings. Rockville, MD Retrieved from http://store.samhsa.gov/home

Scorsone E, & Bateson N (2011). Long-Term Crisis and Systemic Failure: Taking the Fiscal Stress of America's Older Cities Seriously Case Study: Flint, Michigan. East Lansing, MI.

Stoddard S, Zimmerman M, & Bauermeister J (2011). Thinking about the future as a way to succeed in the present: a longitudinal study of future orientation and violent behaviors among African American youth. American Journal of Community Psychology, 48(3–4), 238–246. 10.1007/s10464-010-9383-0 [PubMed: 21104432]

Taylor G (2016). Unmade in America: Industrial Flight and the Decline of Black Communities. Washington, D.C.

Tolan P, Gorman-Smith D, & Henry D (2003). The developmental ecology of urban males' youth violence. Developmental Psychology, 39(2), 274–291. 10.1037/0012-1649.39.2.274 [PubMed: 12661886]

Tourangeau R, & Smith T (1996). Asking sensitive questions: The impact of data collection mode, question format, and question context. Public Opinion Quarterly, 60(2), 275–304. 10.1086/297751

Tourangeau R, & Yan T (2007). Sensitive Questions in Surveys. Psychological Bulletin, 133(5), 859–883. https://doi.Org/10.1037/0033-2909.133.5.859 [PubMed: 17723033]

US Census Bureau. (2015). American Fact Finder. Retrieved from http://factfinder2.census.gov

Van Ryzin M, Fosco G, & Dishion T (2012). Family and peer predictors of substance use from early adolescence to early adulthood: An 11-year prospective analysis. Addictive Behaviors, 37(12), 1314–1324. https://doi.Org/10.1016/j.addbeh.2012.06.020 [PubMed: 22958864]

Weigley S, Hess A, & Sauter M (2013, 6 14). FBI data ranks Flint, Detroit highest on "Most Dangerous Cities in America" list. The Detroit Free Press.

Wilson W (2012). The truly disadvantaged: the inner city, the underclass, and public policy. Chicago ; London: University of Chicago Press Retrieved from http://mirlyn.lib.umich.edu/Record/011695175 CN - HV 4045 .W55 2012

Xue Y, Zimmerman M, & Cunningham R (2009). Relationship between alcohol use and violent behavior among urban African American youths from adolescence to emerging adulthood: A longitudinal study. American Journal of Public Health, 99(11), 2041–2048. 10.2105/AJPH.2008.147827 [PubMed: 19762672]

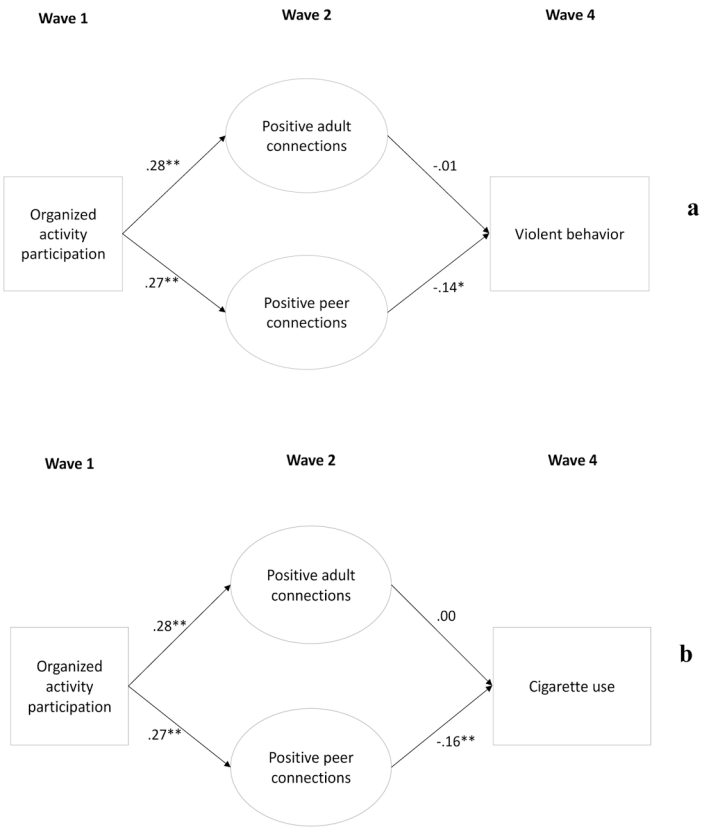

Figure 1:

Model of the proposed mechanism by which organized activity participation influences later violent behavior (a) and cigarette use (b). W1 corresponds to first year of high school, W2 the second and W4 the fourth. Paths include standardized estimates.

Table 1

Descriptive statistics for study variables

Variable	Mean (SD)/proportion
Male	49%
Age (Wave 1)	14.86 (0.65)
Family socioeconomic status[a]	39.80 (10.48)
Wave 1 participation intensity	5.32 (4.57)
Wave 2 positive adults	
Go to church regularly	2.84 (1.22)
Volunteer	2.42 (1.15)
Attended or plans to attend trade school/college	2.17 (1.03)
Wave 2 positive peers	
Participate in school clubs/athletics	2.96 (1.24)
Get all A and B grades	2.40 (1.04)
Plans to attend college	3.39 (1.21)
Wave 4 Outcomes	
Violent behavior	1.34 (.64)
Cigarette use	2.17 (1.43)
Alcohol use	.84 (.93)

[a]Family SES was measured using an occupational prestige score (Nakao & Treas, 1990); the highest occupational group was 64.38 (equivalent to professional/specialty) and the lowest was 29.28 (equivalent to private household work).

Table 2

Structural model fit indices

Model Fit Indices	Violent behavior	Cigarette Use	Alcohol Use
χ^2 (df), *p*-value	161.97 (48), $p = .00$	161.16 (48), $p = .00$	169.37 (48), $p = .00$
RMSEA [90%CI]	.06 [.05, .07]	.06 [.05, .07]	.06 [.05, .07]
CFI	.90	.91	.90

Table 3

Structural model results

	Unstandardized			Standardized		
	Estimate	**SE**	**95% CI**	**Estimate**	**SE**	**95% CI**
Violent Behavior						
Organized Activity -> Positive Adult Connections	.065	.01		.284**	.042	
Organized Activity -> Positive Peer Connections	.043	.010		.274**	.048	
Positive Adult Connections -> Violent Behavior	−.007	.030		−.012	.051	
Positive Peer Connections -> Violent Behavior	−.126	.050		−.145*	.055	
Indirect Effect via Positive Adult Connections	.000		−.004, .003	−.003		−.032, .025
Indirect Effect via Positive Peer Connections	−.005		−.010, −.001	−.040*		−.072; −.008
Cigarette Use						
Organized Activity -> Positive Adult Connections	.064	.010		.282**	.042	
Organized Activity -> Positive Peer Connections	.044	.010		.273**	.048	
Positive Adult Connections -> Cigarette Use	−.006	.051		−.004	.050	
Positive Peer Connections -> Cigarette Use	−.230	.074		−.158**	.051	
Indirect Effect via Positive Adult Connections	.000		−.006, .007	−.002		−.026, .030
Indirect Effect via Positive Peer Connections	−.010		−.017, −.003	−.040*		−.073, −.014
Alcohol Use						
Organized Activity -> Positive Adult Connections	.064	.010		.282**	.041	
Organized Activity -> Positive Peer Connections	.043	.010		.274**	.045	
Positive Adult Connections -> Alcohol Use	−.068	.050		−.076	.055	
Positive Peer Connections -> Alcohol Use	−.092	.073		−.072	.057	
Indirect Effect via Positive Adult Connections	−.004		−.011, .002	−.021		−.052, .009
Indirect Effect via Positive Peer Connections	−.004		−.010, .002	−.020		−.051, .012

** p<.001;

* p<.05;

SE: standard error; CI: confidence interval