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# Organized Activity Involvement Among Urban Youth: Understanding Predictors and Mechanisms

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LOYOLA UNIVERSITY CHICAGO

ORGANIZED ACTIVITY INVOLVEMENT AMONG URBAN YOUTH:  
UNDERSTANDING PREDICTORS AND MECHANISMS

A DISSERTATION SUBMITTED TO  
THE FACULTY OF THE GRADUATE SCHOOL  
IN CANDIDACY FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY

PROGRAM IN CLINICAL PSYCHOLOGY

BY

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## ABSTRACT

Organized activities (OA) are a major context of adolescent development which are linked with positive development outcomes, yet the research is limited in understanding predictors of involvement and mechanisms that explain its effect. Using longitudinal data from a subsample of youth enrolled in the Project on Human Development in Chicago Neighborhoods (N = 1,043), this study examined relations between neighborhood characteristics (i.e., perceived neighborhood safety and neighborhood collective efficacy) and parent characteristics (i.e., parental supervision and parental warmth) and participation in organized activities (OA) at multiple points in adolescence, and whether these relations varied by age and sex. This study also explored whether community violence exposure (victimization and witnessing) and peer characteristics (positive characteristics and deviancy) in middle adolescence mediated the relation between OA involvement in early adolescence and developmental outcomes in later adolescence (e.g., internalizing and externalizing symptoms, delinquency, substance use, and self-efficacy), and whether this varied by sex and SES. Findings indicated that parental supervision significantly predicted participation in OA across multiple waves. Some significant neighborhood effects also emerged. Community violence witnessing significantly mediated the link between OA and developmental outcomes. These findings have important implications for program developers, those working with urban youth, and for the larger organized activity literature.

## **CHAPTER ONE**

### **INTRODUCTION**

Organized activities (OAs) play a significant role in the lives of many youth and adolescents. Indeed, nearly 70 percent of youth between the ages of 10 and 19 years old participate in OAs (Bouffard et al., 2006). Defined as voluntary activities, with regularly scheduled meetings that develop expectations and rules for participants, are organized around developing or achieving particular skills or goals, and involve supervision or guidance from adults (Mahoney, Larson, Eccles, & Lord, 2005). The relevance of organized activity involvement for healthy developmental outcomes for children and adolescents has been well established in the research literature. Among other things, organized activity involvement has been consistently linked with decreases in internalizing and externalizing symptoms, reduced dropout and delinquency rates, and increased academic performance and motivation (e.g., Barber, 2001; Mahoney, 2002; Mahoney & Cairns, 1997). Involvement in organized activities (OAs) are particularly important to examine during adolescence, a developmental period involving emotional, physical, cognitive, and social changes, during which individuals face increased psychological vulnerability and social difficulty (Andersen & Teicher, 2008). Although the research base examining links between OA and developmental outcomes among adolescents, and moderators of these relations is robust, there is still limited

understanding of important aspects of adolescent activity involvement, including predictors of OA involvement and mechanisms that explain its effect.

For predictors, prior work has primarily examined how demographic and individual factors, (i.e., age, sex, and SES) predict OA involvement among adolescents (Bohnert et al., 2010; Bohnert & Garber, 2007; Bohnert, Kane, & Garber, 2008; Eccles & Barber, 1999; Feldman & Matjasko, 2007; Posner & Vandell, 1999; McHale et al., 2001), with little research focused on the most proximal ecological influences, especially parents and neighborhoods. Similarly, while many have proposed potential OA mechanisms, few have examined these empirically. To date, peer characteristics are the primary mechanism that has been examined (Blomfield & Barber, 2010; Fredricks & Eccles, 2005; Simpkins et al., 2008), but other salient developmental contexts have not been considered as mechanisms. These ecological contexts may be particularly important to consider among urban youth.

Building on the existing OA literature to better understand the experiences of OA involvement among adolescents residing in urban settings, there are two primary aims of this longitudinal study. First, using a large, ethnically-diverse sample of urban youth, this study will examine how neighborhood characteristics (i.e., safety and collective efficacy) and parental characteristics (i.e., warmth and supervision) predict patterns of OA involvement at three points in adolescence (see Model 1). Second, this study will examine mediators of the relation between OA involvement in early adolescence and both positive and negative developmental outcomes in later adolescence (psychological

adjustment, substance use, delinquency, and self-efficacy; see Model 2). Mediators from two different ecological contexts will be considered, including community violence exposure and peer characteristics. In the following sections, the relevant literature pertaining to these aims and models will be reviewed.

## CHAPTER TWO

### REVIEW OF RELEVANT LITERATURE

#### **Predictors of Organized Activity Involvement**

Estimates of the percentages of youth who do not engage in any OAs range between 25 and 40 percent (Bouffard et al., 2006; Eccles & Barber, 1999; Mahoney, 2000; Mahoney, Harris, & Eccles, 2006). Even among those who do participate, there is variation in patterns of participation, with associated impacts on developmental outcomes (Bohnert et al., 2010; Mahoney et al., 2003). For example, researchers often examine different dimensions of OA involvement, including type (i.e., sports, performance/fine arts, church groups, etc...) intensity, (i.e., the frequency of participation in a particular activity or activity context), and breadth (i.e., the number of different activity contexts participated in), and patterns of these dimensions vary across development. Conceptually, these dimensions are unique as they offer different developmental experiences. For example, sports are often thought to teach teamwork, skill building, and goal setting, amongst other things, while church groups are often more focused on service, moral development, and religious learning. Additionally, OA intensity is thought to reflect the dosage of the OA experience, with more frequent and intense involvement providing more opportunities to benefit from the developmental experience. In contrast, OA breadth reflects opportunities for varied developmental experiences and skill- and relation-building in a variety of contexts. As such, identifying factors associated with different

patterns of OA involvement at one time point and across adolescence is important.

Processes affecting an individual's initial participation and continued participation over time are complex and remain not well understood. Researchers suggest that youth's ability to select to participate in OAs depends on the characteristics of the individual considered, features of his or her family, and the community in which he or she resides (Caldwell & Baldwin, 2005; Elder & Conger, 2000; Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999). Activity selection, as well as continued involvement across time, therefore, involves a reciprocal process between contextual constraints, opportunities for participation, and individual characteristics (Mahoney et al., 2005).

A majority of prior work on predictors of OA involvement has focused on demographic factors, individual characteristics, and socioeconomic status (SES), with limited work examining parent/family and community factors beyond SES (Bohnert et al., 2010; Bohnert & Garber, 2007; Bohnert et al., 2008; Eccles & Barber, 1999; Feldman & Matjasko, 2007; Posner & Vandell, 1999; McHale et al., 2001). Indeed, much of this work has focused on features of the individual that influence rates of participation, including ethnicity, sex, age, and prior psychological adjustment. For example, adolescent ethnicity is associated with OA participation, with Latino adolescents having significantly lower rates of involvement than their Caucasian and African-American counterparts (Darling, 2005; Davalos et al., 1999; Simpkins et al., 2007; Feldman & Matjasko, 2007; Pederson & Seidman, 2005). Sex has also been associated with differing patterns of OA involvement. Studies have found that males have higher rates of

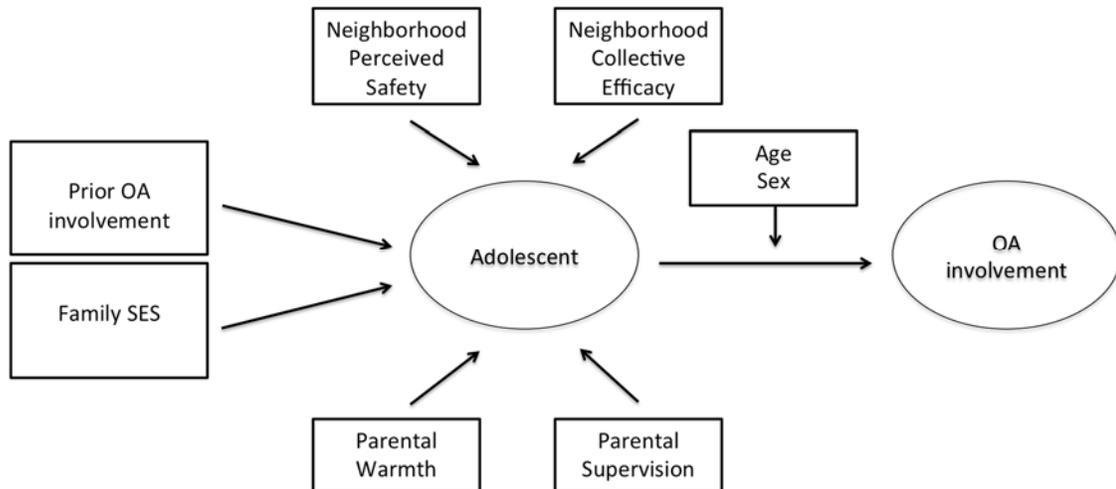
involvement in sports (Mahoney, Cairns, & Farmer, 2003), while females have greater and more variety of overall OA involvement (Eccles & Barber, 1999; Jacobs, Vernon, & Eccles, 2005). In considering age, research suggests that participation in OAs declines as children move into and through adolescence (Eccles & Gootman, 2002). Finally, multiple studies have found that prior psychological adjustment predicts later activity involvement in both childhood and adolescence (Bohnert & Garber, 2007; Bohnert et al., 2008; Posner & Vandell, 1999; McHale et al., 2001). While important and informative, the focus on these individual characteristics, many of which are static and unchangeable, loses sight of the broader ecological contextual factors that likely influence adolescents' participation in organized activities. Indeed, Bronfenbrenner's ecological model of development highlights that youth's development is influenced by the qualities of the contexts in which they live, and the extent and nature of the interaction between these contexts (1979; 1998). This suggests that, for adolescents, development is influenced by the interaction of their personal characteristics with their family, schools, communities, activities, and larger cultural influences. Two proximal ecological developmental contexts, neighborhood and parental characteristics, have been understudied in understanding influencing factors associated with adolescents' activity involvement.

Neighborhoods characteristics are particularly important to examine in an urban sample, as they can be highly variable and tend to have greater impact on adolescents than in rural or suburban samples (Leventhal & Brooks-Gunn, 2000). Research that has considered neighborhood and parental characteristics as predictors of OA involvement has primarily focused on economic resources of the family or neighborhood, which have

been demonstrated to be strong and significant predictors of OA involvement (Elder & Conger, 2000; Furstenberg et al., 1999; Mahoney, Vandell, Simpkins, & Zarrett, 2009). Of note, rates of involvement in OA remain low among low-income youth, even when availability of activities is high (Dynarski et al., 2004). This highlights the importance of moving beyond socioeconomic status in considering the effects of neighborhoods and parents.

Taking a developmental perspective requires an appreciation of the continuities and changes over the course of development. Although examining predictors of OA involvement at one time point is informative, there is a need to appreciate that patterns of OA may change and be differentially impacted by ecological factors at different points in development. Indeed, research suggests that OA participation tends to decline and become more narrowed as youth move through adolescence (Carver & Iruka, 2006). Additionally, parents tend to exert their greatest influence in earlier adolescence during the period when involvement in OAs typically is initiated and then sustained, making this time period the ideal time to examine the influence of parental characteristics on OA. Thus, the current study will examine how neighborhood and parental characteristics in early adolescence predict patterns of OA involvement at three points in development, concurrently during early adolescence (9/12 years old), and longitudinally at both middle adolescence (11/14 years old), and late adolescence (13/16 years old). Parent and neighborhood characteristics from early adolescence will be examined as research suggests a consistent pattern of neighborhood effects throughout the course of adolescent development (Leventhal & Brooks-Gunn, 2000).

Figure 1. Predictor Model of Neighborhood and Parental Characteristics Predicting OA Involvement



### Neighborhood Characteristics Predicting Organized Activity Involvement

Over the course of development, youth spend increasing amounts of time outside of the home and away from their families. Hence, the neighborhoods and larger communities that youth live in represent an important context that increasingly influences their development above and beyond individual and family characteristics (Aber, Gephard, Brooks-Gunn, & Connell, 1997; Graber & Brooks-Gunn, 1996). The neighborhoods in which youth reside typically provide the locale of their schools, social networks, employment, and extracurricular activities (Leventhal & Brooks-Gunn, 2000). Thus, certain neighborhood characteristics may enhance the likelihood or serve as obstacles to youth getting and staying involved in OAs, and may be important to examine in relation to youth's participation in OAs concurrently and continuously across time.

To date, much of the research examining neighborhood effects on OA participation has focused on neighborhood socioeconomic status. This research suggests

youth living in disadvantaged neighborhoods have lower OA participation rates than their more advantaged counterparts (Bouffard et al., 2006; Mahoney et al., 2009). However, neighborhood income does not operate alone in predicting youth involvement in OAs. In fact, despite increased funding and availability of OAs in low-income neighborhoods, participation rates have remained low (Dearing, Wimer, Simpkins, Lund, et al., 2009). Additionally, research has demonstrated low-to-moderate attendance rates amongst low-income youth, even when they have direct access to community-based activity programs (Dynarski et al., 2004). This suggests the importance of looking above and beyond neighborhood SES in understanding neighborhood influences on adolescent OA participation. Indeed, considering the differing needs of youth living in various neighborhoods is essential for policymakers when designing and funding afterschool activities for youth. In considering neighborhood characteristics, two aspects of the urban neighborhood environment may be particularly important: neighborhood safety and neighborhood collective efficacy.

Neighborhood safety is one aspect of the neighborhood that may limit children's access to available activities (Leventhal & Brooks-Gunn, 2000; McLaughlin et al., 1994; Sampson et al., 2002). Indeed, neighborhood safety plays an important role in shaping adults' and adolescents' leisure time and use of parks (Palen et al., 2010; Stodolska, Acevedo, & Shiner, 2009; Stodolska & Yi, 2003). However, neighborhood safety could affect patterns of OA involvement in multiple ways. Involvement in OAs inevitably requires time away from home and travel to and from the activity, which increases contact with the neighborhood. In dangerous and disorganized neighborhoods, parents

may restrict their children's access to activities in order to protect their children from harm (Furstenberg et al., 1999; Jarrett & Jefferson, 2003; Shann, 2001). In contrast, OAs may serve as a safe-haven, providing youth with a structured environment to spend their free time when they may be otherwise engaged in unstructured activities within the neighborhood. Indeed, qualitative work has demonstrated that staying home or participating in fully supervised, prosocial activities is the only means of staying safe in dangerous neighborhoods (Furstenberg, 1993; Jarrett, 1999; Molnar, Roberts, Browne, Gardener, & Buka, 2005). This highlights both ways in which neighborhood safety may relate to patterns of OA involvement, and the complexity in understanding the relations. Although informative, this qualitative work fails to determine which of these patterns is more prominent in unsafe neighborhoods. Additionally, it remains unclear whether neighborhood safety affects all types and patterns of OA involvement equally. For example, in disadvantaged neighborhoods, parents may seek out certain activities over others. Church activities, for example, often serve as a low-cost resource for these children and families (Jarrett, 1999; Stroll, 2001). This suggests that while neighborhood safety issues may be a barrier to involvement, it also may precipitate involvement in specific types of activities to increase safety. Thus, neighborhood safety may operate differently for youth's participation in different types of activities. To date, only one quantitative study has examined the link between neighborhood conditions and participation in OAs. This study found that living in neighborhoods that were affluent, safe, and orderly predicted higher rates of participation in OAs (Dearing et al., 2009). However, this study failed to tease apart the effects of affluence and neighborhood safety,

and did not look at different aspects of activity involvement. Thus, the current longitudinal study will examine how perceptions of neighborhood safety in early adolescence predicts patterns of OA involvement both concurrently (i.e., intensity) and longitudinally (i.e., type and breadth) at two points in later adolescence amongst a representative sample of ethnically diverse urban adolescents.

Neighborhood collective efficacy (NCE) refers to the shared belief among community members that they are capable of working together for the common good (Leventhall & Brooks-Gunn, 2000). It describes the extent of social connections in the neighborhood and the degree to which residents monitor the behavior of others in accordance with socially accepted practices and with the goal of supervising children and maintaining public order (Sampson, 2002). Essentially, NCE is a combined measure of informal social control and social cohesion obtained from a community survey. Importantly, community collective efficacy is ability of neighborhoods to implement informal and formal institutions to monitor the activities of children and youth, and is distinct from a neighborhood's affluence or accumulation of social resources (Leventhall & Brooks-Gunn, 2000). Research examining community collective efficacy has highlighted its important role in communities, particularly amongst youth, as it is linked with lower rates of adolescent delinquency and community violence (Elliot et al., 1996; Morenoff, Sampson, and Raudenbush, 2001; Sampson, Raudenbush, and Earls, 1997; Simons et al. 2005).

To date, no work has examined the effects of neighborhood collective efficacy on youth's involvement in organized activities; however, limited work has suggested that it

is linked with adolescent's unstructured, unsupervised socializing time (Maimon & Browning, 2010). Theoretically, community norms may help establish a context in which stimulating activities outside of school are valued and supported socially (Sampson et al., 1999; 2002). Indeed, the presence of social control mechanisms at the neighborhood level (i.e., NCE) might play an important role in either encouraging or preventing youth's participation in organized activities. Residing in a neighborhood in which community members feel connected to and value the institutions available within the community, including organized activities, likely increases an adolescent's ability and likelihood to participate in OAs. Thus, the current longitudinal study will examine how neighborhood collective efficacy in early adolescence predicts patterns of OA involvement both concurrently (i.e., intensity) and longitudinally (i.e., type and breadth) at two points in later adolescence amongst a representative sample of ethnically diverse urban adolescents.

### **Parental Characteristics Predicting Organized Activity Involvement**

Although many factors likely influence youth's interest in OAs, and they may become involved in OAs without adult input, it is likely that most, if not all of the activities in which youth participate are influenced in some way by parental support, encouragement, or other factors. Indeed, parents represent proximal influences on development, and are postulated to be important to youth's out-of-school experiences (National Research Council and Institute of Medicine, 2002). In spite of this, research examining the role of parents in influencing youth's involvement in OAs remains limited. To date, much of the work in this area has focused on parental support, beliefs, or values

specifically related to activity participation. For example, parental encouragement of and participation in their children's activities was associated with 2<sup>nd</sup>-5<sup>th</sup> grade children's involvement in math, science, and computer OAs (Simpkins, Davis-Kean, Eccles, 2005). Similarly, parents' beliefs about the importance and benefits of participation in specific activities have been linked with higher rates of youth's participation in sports and fine art activities (Denault & Poulin, 2000; Jacobs et al., 2005). Additionally, cross-sectional studies have linked parental support and endorsement of structured activities to youth's participation in OAs (Anderson, Funk, Elliot & Hull Smith, 2003; Huebner & Mancini, 2003).

Taken together, this research highlights that parents' beliefs and support are strong, positive predictors of children's participation in OAs, and that children are more likely to become involved in activities that their parents value, encourage, and support. Although this research demonstrates the importance of parental characteristics in influencing youth participation in OAs, there are several important gaps in the literature. First, few studies have examined how parental characteristics influence youth involvement in OAs both concurrently and longitudinally. Given the demonstrated benefits of prolonged OA involvement and the differential effects it can have across the course of development, it is essential to look beyond participation rates at a single time point, and understand what factors influence a youth's participation at different points in adolescence. Second, prior studies have employed relatively basic conceptualizations of OA involvement. Many have focused on specific types of activity involvement (i.e., sports, fine arts, academic clubs) without considering broader indices of OA involvement,

like intensity or breadth. Examining predictors of participation in specific types of activity, in addition to broader indices is important as OA intensity and breadth provide unique developmental opportunities and each is associated with unique developmental outcomes (Bohnert et al., 2010). Finally, research to date has focused primarily on parental characteristics or behaviors specifically related to the activity context (i.e., parent support and valuing of OAs, parental involvement in OAs). Although this work is important and highlights the significant role parents play in their children's OA involvement, it fails to take into account how more general characteristics of parents, as well as the home environment, influence their children's rates of participation. In other words, besides a parent's direct endorsement or participation in an activity, how do more general parental characteristics affect youth's rates of involvement in OA across adolescence? The current study will consider two such parental characteristics, parental warmth and supervision.

Parental warmth is one parenting characteristic that defines the general emotional climate within a home (Fletcher, Elder, & Mekos, 2000). It involves an underlying emphasis on concern for and responsiveness to children's specific needs and desires (Darling & Steinberg, 1993), including involvement in organized activities. In other words, parents who demonstrate high levels of warmth may directly influence their children's involvement in OAs by being responsive to their children's expressed interests. Indeed, research has demonstrated that parents high on warmth are more likely to be involved in their adolescents' school experiences (Steinberg, Lamborn, Dornbusch, & Darling, 1992). Parents may also influence adolescents' OA choices indirectly by

creating positive or negative feelings about adult-controlled, structured settings in general (Kerr, Stattin, Biesecker, & Ferrer-Wreder, 2003; Persson, Kerr, & Stattin, 2007). As suggested by Kerr et al. (2003)'s context-choice explanation, emotions generated in the home setting help to steer youth's choices of leisure contexts. Thus, if parents are warm and generate positive emotions at home, then youth should gravitate toward leisure settings that can elicit the same good feelings (i.e., adult-led, structured activities; Persson et al., 2007).

Work examining parental warmth related to youth's OA involvement is limited, but provides some initial evidence for its role. Though not specifically examining parental warmth, Persson and colleagues (2004) found that adolescent females who had poorer relationships with their parents had higher rates of involvement in *unstructured* activities. In one study of gifted youth, parental warmth was associated with increased involvement of the gifted youth in activities supporting their talents (Csikszentmihalyi, Rathunde, & Whalen, 1993). In a broader study, Fletcher and colleagues (2000) found that parental warmth was associated with adolescents' community involvement in ninth grade, and was predictive of tenth grade involvement when parents maintained a low level of their own involvement in community activities. Building on this work, the current longitudinal study will examine how parental warmth in early adolescence predicts patterns of OA involvement both concurrently (i.e., intensity) and longitudinally (i.e., type and breadth) at two points in later adolescence among a representative sample of ethnically diverse urban adolescents.

Parental supervision or monitoring is another important parental characteristic that is likely to exert an influence on youth's activity involvement. It generally refers to the extent to which parents are able to monitor their children and have knowledge of their children's whereabouts and activities (Darling & Steinberg, 1993). Researchers have suggested that what parents know about their children can influence their interactions in other settings (Darling & Steinberg, 1993), which may include organized activities. In theory, parents high in supervision are more involved in how their children spend their time. This suggests that parents not only would be aware of where their children are, but also influence what their children do, particularly during the after-school hours. While research is limited, there is some evidence to suggest that parental supervision plays a role in influencing youth's activity involvement. For example, youth with parents low in supervision are more likely to be involved in unstructured activities during leisure hours (Mahoney et al., 2004). While not directly examining participation in OAs, this study suggests a link between parental supervision and how youth spend their time. Additionally, research suggests that parents who show an interest in how their child spends their free time are more likely to promote activity participation by making their children feel they will be supported in their participation efforts (Fletcher et al., 2000; Simpkins et al., 2005). The current longitudinal study will examine how parental supervision in early adolescence predicts patterns of OA involvement both concurrently (i.e., intensity), and longitudinally (i.e., type and breadth) at two points in later adolescence amongst a representative sample of ethnically diverse urban adolescents.

**Moderating variables.** As described previously, an extensive literature has highlighted that demographic and individual factors significantly impact adolescents' rates of involvement in organized activities (Bohnert & Garber, 2007; Bohnert et al., 2008; Eccles & Barber, 1999; Feldman & Matjasko, 2007; Posner & Vandell, 1999; McHale et al., 2001). As such, examining ecological predictors of OA involvement across adolescence without considering the role of demographic variables that have been shown to be relevant would be shortsighted. Thus, the current study will examine sex and age as moderators of the relations between neighborhood and parental characteristics and patterns of OA involvement.

**Sex.** Previous studies have indicated that patterns of adolescents' activity involvement may vary by sex. Findings related to sex and levels of involvement during high school have been mixed, with some studies reporting greater and more variety of participation for females (Eccles & Barber, 1999; Jacobs et al., 2005) and others reporting no sex differences (Mahoney et al., 2003). Moreover, some research has suggested that parental characteristics may have differential effects for males and females. Research has suggested that parental support and encouragement may be more important for females' sports participation than males (Lewko & Ewing, 1980; Spreitzer & Snyder, 1976). Additionally, perceived parental pressure has been associated with a more negative activity experience for females than more males (Leff & Hoyle, 1995). In contrast, Simpkins and colleagues (2005) found that relations between parents' behavior and children's participation were similar for males and females. Given the diverse nature of these findings, and the suggestion that participation rates and patterns may vary for

males and females, the current study will examine sex as a moderator of the relations between neighborhood and parental characteristics and patterns of OA involvement at three developmental time points (concurrently at Wave 1, and longitudinally at Waves 2 and 3).

*Age.* Participation in afterschool activities tends to decline as children move into adolescence (Carver & Iruka, 2006). However, organized activities are typically most accessible to older adolescents (Mahoney, Larson, & Eccles, 2005). Additionally, research suggests that participation becomes more intense, but less varied (Rose-Krasnor et al., 2006). As such, the relevance of particular OAs in youths' lives may change over time. Additionally, the effect of parental and neighborhood characteristics on patterns of activity involvement may vary as a function of age. Parents may exert less influence as youth become older and the effect of peers becomes more salient. Additionally, the effect of neighborhood characteristics may become more prominent for older youth who have more access and exposure to community elements, including violence. As such, the current study will examine age as a moderator of the relations between parental and neighborhood characteristics, and patterns of OA involvement at three developmental time points (concurrently at Wave 1, and longitudinally at Waves 2 and 3).

### **Organized Activities and Developmental Outcomes**

The benefits of OA involvement for children and adolescents are well established. An extensive research literature demonstrates that participation in organized activities is linked concurrently and longitudinally with a host of positive developmental indicators (Barber, 2001; Farb & Matjasko, 2012; Larson & Brown, 2007; Mahoney, 2002;

Mahoney et al., 2006; Wood, Larson, & Brown, 2009); however, much of the research literature focuses on three developmental adjustment outcomes with somewhat mixed findings for each (i.e., psychological adjustment, delinquency, and substance use).

Numerous studies have focused on the link between OA participation and psychological adjustment. Although these studies suggest that involvement is generally associated with better adjustment, there have been some mixed results. For instance, some studies have reported that participation in OAs is linked with decreased depressive and internalizing symptoms, increased self-worth, and better mental health during adolescence and young adulthood (Barber, Eccles, Stone, 2001; Bohnert et al., 2008; Fredricks & Eccles, 2010; Mason, Schmidt, Abraham, Walker, & Tercyak, 2009; Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006; Youniss, McLellan, Su, & Yates, 1999); however, other studies have found no link between OA and adolescent internalizing symptoms (Bohnert & Garber, 2007; Darling, 2005; Denault & Poulin, 2009).

Similarly, some research has found an inverse association between OA involvement and rates of criminal offending or delinquency in adolescence and young adulthood (Mahoney 2000, Mahoney & Cairns, 1997) although other studies have demonstrated positive links between sports participation and non-violent delinquency, particularly amongst boys (Gardner, Roth, and Brooks-Gunn, 2009; Fauth et al., 2007). Research examining substance use has also yielded somewhat mixed results. Although both cross-sectional and longitudinal examinations of specific types of activities and broad indices of involvement (i.e., breadth and intensity) have found that participation in OAs has generally been linked with decreased rates of alcohol and drug use during a

developmental period when substance use tends to increase (Bohnert & Garber, 2007; Busseri et al., 2006; Darling, 2005; Eccles et al., 2003; Fredricks & Eccles, 2006; Youniss, Yates, & Su, 1997), some research suggests that sports participation in particular is associated with increased substance use amongst adolescents and young adults (Barber et al., 2001; Denault, 2009; Eccles & Barber, 1999; Eccles et al., 2003; Fauth et al., 2007; Fredricks & Eccles, 2005; Hoffman, 2006).

Although much of the OA literature has focused on negative adolescent outcomes (i.e., psychological maladjustment, delinquency, substance use), growing interest in positive youth development (PYD), which is concerned with functioning beyond the absence of problems (Lerner, Almerigi, Theokas, & Lerner, 2005), points to the importance of examining indicators of positive youth functioning. Self-efficacy, which refers to the extent or strength of one's belief in one's own ability to complete tasks and reach goals, may be one important indicator of positive functioning to consider in the context of adolescent OA involvement (Ormrod, 2006). Self-efficacy has been linked with improved academic, social, and mental health outcomes (Gardner, Browning, & Brooks-Gunn, 2012; Ormrod, 2006; Kim & Cicchetti, 2003). Because organized activities, by definition, include developing or achieving particular goals and provide frequent opportunities to do so, they are thought to be an ideal context in which self-efficacy is cultivated and honed (Gardner et al., 2012).

Taken together, the existing research base provides strong support for links between OA participation and developmental outcomes, including psychological adjustment, delinquency, and substance use. However, the mixed results highlight that

outcomes may vary depending on the way in which analyses are examined (cross-sectionally versus longitudinally), and the type of sample assessed. Many of the existing studies have relied on cross-sectional analyses (Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2007; Darling, 2005; Feldman & Matjasko, 2007; Fredricks & Eccles, 2005; Larson, Hansen, & Moneta, 2006; Luthar et al., 2006; Mahoney et al., 2006; McHale et al., 2005; Randall & Bohnert, 2009; Rose-Krasnor et al., 2006) and small samples or samples drawn in a non-representative way (Bohnert & Garber, 2007; Busseri et al., 2006; Darling, 2005; Denault & Poulin, 2009; Luthar et al., 2006; McHale et al., 2005; Randall & Bohnert, 2009) to examine links between OA and developmental outcomes, failing to adequately control for selection effects and limiting the scope with which results can be interpreted. Thus, additional longitudinal work examining links between OA involvement and developmental outcomes among samples drawn using census data and stratification methods is still needed. This is particularly important to examine amongst representative samples of urban youth.

Urban environments, in contrast to rural or suburban environments, provide unique environments in which organized activities (OAs) take place and influence adolescents. First, urban youth tend to have more adjustment difficulties than their rural or suburban counterparts (Weist, Freedman, Paskewitz, Proescher, & Flaherty, 1995). Thus, examining how OAs may improve adjustment is especially relevant amongst urban youth. Second, constraints of an urban environment, including transportation, economic, and facility constraints may impact the availability and variety of OAs and the ways in which OAs impact development. OA research amongst representative samples of urban

youth is limited. To date, only one study has examined longitudinal associations between OA involvement and a range of developmental outcomes (psychological adjustment, delinquency, and substance use) among a representative urban sample, and this study drew from the same dataset as the current study (Fauth et al., 2007). While the current study will draw on the same dataset as Fauth and colleagues, it will address several gaps in the prior work. First, Fauth and colleagues (2007) only considered type and breadth of OA involvement in relation to developmental outcomes. Although these dimensions of OA involvement are important and informative, OA intensity, one of the most commonly assessed indicators of OA involvement, was not assessed. The current study will examine intensity of OA involvement in relation to developmental outcomes. Second, Fauth and colleagues (2007) only looked at OA involvement in middle and late-adolescence (Wave 2 and 3 of the study). The current study will consider the role of OA involvement in early adolescence (Wave 1 of the study) in relation to later developmental outcomes. Finally, Fauth and colleagues (2007) focused on indicators of developmental maladjustment, without considering indicators of positive youth development. Taking a holistic developmental perspective, the current longitudinal study will examine the relation between *intensity* of OA involvement in early adolescence and both positive and negative indicators of adolescent development in later adolescence, including psychological adjustment, delinquency, substance use, *and* self-efficacy among a representative sample of ethnically and economically diverse urban adolescents. In addition, several mediators of these relations will be examined to better understand mechanisms that may explain why OA involvement is associated with better outcomes.

### **Theoretical Mechanisms**

The extant literature on the effects of organized activity involvement on adolescent development provides evidence that participation in OAs is associated with both short and long-term indicators of positive development (Eccles, Stone, & Hunt, 2003). However, these findings provide little insight into the reasons for these associations. Indeed, while longitudinal and cross-sectional findings provide strong evidence for links between OA and developmental outcomes, the evidence for a causal inference is weak. Therefore, the field lacks understanding of the actual *features* of the OA experience that might matter. In other words, what makes organized activities beneficial? With government agencies and private foundations investing large sums of money in OAs aiming to promote positive and prevent problematic youth development (Eccles & Gootman, 2002), it is essential to identify the mechanisms through which OAs operate on youth development and ensure money is directed towards programs that work for specific youth.

Drawing on Bronfenbrenner's ecological model, not only is it important to consider the various contexts of development, but the interaction of these contexts. This suggests that the benefits of organized activities may occur through its impact on other developmental contexts (Feldman, Farb, & Matjasko, 2012; Mahoney et al., 2005). Thus, the relation between OA participation and adolescents' developmental outcomes might operate through the characteristics of the peers or adults who are also involved in the

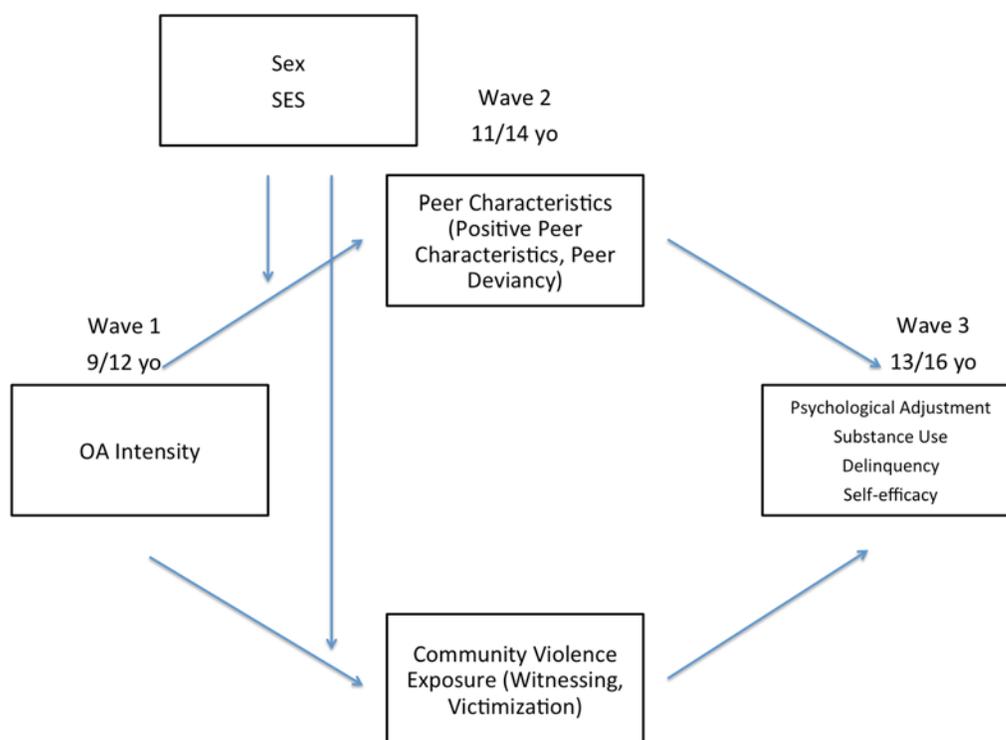
activity, the community in which the activity takes place, or the experiences that adolescents have outside of the OA context.

To date, many proposed mechanisms have been offered to explain the links between OA involvement and healthy development. OAs are thought to promote healthy adolescent development because they offer supports and opportunities that are of known developmental value, including physical and psychological safety, appropriate structure, supportive relationships, opportunities for belonging, positive social norms, support for efficacy and mattering, opportunities for skills building, and integration of family, school, and community efforts (Eccles & Gootman, 2002). More specifically, OAs typically offer a context of safety during the after-school hours when youth may otherwise be engaged in unstructured and unsafe activities (McLaughlin, 2000). They also provide shared experiences for adolescents and their parents, integrating adolescent and family networks (Mahoney, Larson, Eccles, & Lord, 2005). Through OAs, youth establish supportive social networks of peers and adults that can help them in the present and future (Hansen, Larson, & Dworkin, 2003; Mahoney et al., 2002). They also gain social recognition in valued peer groups (Bohnert, Wargo-Aikins, & Arola, 2013; Eder & Kinney, 1995). All together, these theoretical mechanisms are thought to facilitate current and subsequent school engagement/achievement, improve mental health, and prevent the emergence of risky behavior patterns (Eccles et al., 2003).

Noting the causal gap in the existing OA literature, many researchers have called for longitudinal studies designed to evaluate the many theoretically-based mechanisms thought to mediate the association between OA involvement and developmental

outcomes (Eccles et al., 2003). Despite this call, few empirical studies have examined mediators of the link between OA and developmental outcomes. In fact, to date, most research has only examined peer characteristics as an empirical mechanism (Blomfield & Barber, 2010; Fredricks & Eccles, 2005; Mahoney et al., 2003). The current study will address this gap in the literature by examining two mechanisms through which OAs impact developmental outcomes, each representing a distinct ecological context; community violence exposure and peer characteristics.

Figure 2. Proposed Moderated Mediation Model



### Peer Characteristics as Mechanism

Organized activities require significant amounts of adolescents' time and structure a substantial amount of peer group interaction. Within OAs, adolescents are linked to

similar types of peers with shared experiences and goals. Thus, it's likely that adolescents' friends and peer group will be drawn from other participants, and that the collective behaviors of the OA peer group will influence the behaviors of each member (Blomfield & Barber, 2010; Bohnert et al., 2013; Eccles et al., 2003). As such, the differences in academic, behavioral, and emotional developmental outcomes based on OA involvement may be related to the types of peers and peer norms that emerge within the context of OA. Research has found that participation in OAs, in general, is associated with less time spent with deviant peers (Barber, Stone, & Eccles, 2010; Hardaway, McLoyd, & Wood, 2012; Mahoney et al., 2006), and that participation in specific types of OAs is linked to higher proportions of academically oriented friends, and lower proportions of friends who used drugs or alcohol, skipped school, and engaged in risky behaviors (Eccles et al., 2003).

In addition to research linking OA involvement with peer characteristics, a small number of studies have examined peer characteristics as a mediator of the link between OAs and developmental outcomes. For academic outcomes, prosocial peers have been examined as a mediator with mixed results. Fredricks and Eccles (2005) found that prosocial peers partially mediated the link between participation in school clubs and measures of school belonging and affect. However, Darling et al. (2005) found no support for peer group characteristics mediating the link between OA involvement and academic outcomes. Of note, both studies examined mediation cross-sectionally, limiting the causal implications of the studies and ability to rule out selection effects. Looking at substance use as an outcome, Simpkins et al. (2008) found that friends' positive

characteristics, including doing well in school and planning to go to college, mediated the relation between OA participation and alcohol use in a longitudinal analysis. Similar support has been found for peers mediating the link between OA and psychological adjustment outcomes. Fredricks and Eccles (2005) found that affiliation with prosocial peers mediated the relation between involvement in school clubs and lower ratings of depression. Similarly, Simpkins et al. (2008) found that both positive and negative peer characteristics mediated the relation between participation in OA and psychological adjustment, including depression and self-worth. Simpkins et al. (2008) also found that friends' characteristics, including their values and attitudes toward teachers and school, mediated the link between OA involvement and delinquent or problem behavior, including skipping school, being sent to the principal's office, and being suspended. Finally, Blomfield & Barber (2010) found that friends' alcohol use mediated the relation between participation in team sports and alcohol use, and friend's skipping school mediated the relation between participation in individual sports and skipping school. Given the mixed nature of these findings, more longitudinal research is needed to further elucidate whether and how peers matter. The current longitudinal study will build on existing literature by examining both positive peer characteristics and peer deviancy in middle adolescence as mediators of the relation between OA involvement (i.e., intensity) in early adolescence and developmental outcomes, including psychological adjustment, delinquency, substance use, and self-efficacy outcomes in later adolescence.

### **Community Violence Exposure as Mechanism**

Adolescents living in US cities are exposed to extremely high rates of community violence exposure (Dempsey, 2002; Gorman-Smith, Henry, & Tolan, 2004), with victimization occurring most frequently amongst adolescents between the ages of 12 and 15 (Cooley-Strickland et al., 2009). Community violence exposure is associated with a variety of psychological consequences for both victims and witnesses, including behavioral problems, delinquency, depression, and post-traumatic stress disorder (Dempsey, 2002; Foster & Brooks-Gunn, 2009; Gorman-Smith et al., 2004; Ozer & Weinstein, 2004; Scarpa, Haden, & Hurley, 2006). Notably, most exposure occurs in the after-school hours (Newman, Fox, Flynn, & Chriteson, 2003); thus, amongst urban youth organized activities may provide physical and psychological safety from the dangers of everyday life. Indeed, qualitative work suggests that participating in supervised activities is the only means of staying safe in dangerous neighborhoods, with the exception of simply staying home (Furstenberg, 1993; Jarrett, 1999; Molnar et al., 2005). Few studies have examined community violence exposure in the context of organized activity involvement, and no studies, to date have assessed it as a mechanism. One study found that adolescent's OA involvement was associated with less exposure to community violence (Richards et al., 2004). Contrary to this finding, Kennedy and Ceballo (2013) found that greater participation in both non-school sports and non-school clubs was associated with increased exposure to community violence. However, participation in other types of OAs was not associated with increased violence exposure. While unexpected, the authors suggest that the non-school activities may have provided little

structure and adult supervision, which may have contributed to the increased violence exposure. Clearly, further analysis is warranted; not only to elucidate the link between OA participation and community violence exposure, but also to determine whether OAs beneficial developmental outcomes may be partially attributed to decreased community violence exposure amongst urban youth. The current longitudinal study will examine community violence exposure, both witnessing and victimization in middle adolescence, as a mediator of the relation between OA involvement in early adolescence (i.e., intensity) and developmental outcomes, including psychological adjustment (i.e., internalizing and externalizing symptoms), delinquency, substance use, and self-efficacy in later adolescence.

**Moderated mediation.** Existing research provides compelling evidence for the potential role of community violence exposure and peer characteristics as mediators of the relation between OA involvement and developmental outcomes; however, it is likely that the strength of these mechanisms may depend upon the characteristics of the youth involved. More specifically, the links between OA involvement and the proposed mechanisms may vary as a function of youth's sex and socioeconomic status (SES; see Model 2). Each of these moderators will be further described below.

**Sex.** Research has demonstrated that the experience of OAs may vary for males and females (Eccles & Barber, 1999; Fredricks & Eccles, 2006; Fredricks & Eccles, 2008; McHale et al., 2005; Miller et al., 2005; Gadbois & Bowker, 2007). As such, the impact of specific OA mechanisms may also vary by sex. For example, research has suggested that the influence of peers during adolescence is stronger for females (Brown,

1982). Indeed, peer characteristics may be more relevant for females, as involvement in OA has been associated with more prosocial peers for females, but not males (Eccles & Barber, 1999; Fredricks & Eccles, 2006). This suggests that the ability of OAs to impact adolescent's peer networks may be stronger for females than for males. As such, sex will be examined as a moderator of the mediational path from OA involvement to peer characteristics.

In contrast to peer influences, OAs ability to impact community violence exposure may be more significant for males. Indeed, research has typically shown that males are exposed to community violence, as both witnesses and victims, more frequently than females (Richters & Martinez, 1993; Schwab-Stone et al., 1995). As such, males may be in greater need of the physical safety that OAs provide, and their rates of community violence exposure may be more significantly impacted by their involvement in OAs. Given this, sex will be examined as a moderator of the mediational path from OA involvement to community violence exposure.

***Socioeconomic status.*** Research has demonstrated that the experience of OAs may vary for adolescents based on socioeconomic status (SES; Mahoney, 2000; Marsh, 1992; Marsh & Kleitman, 2002). As such, the strength with which OAs operate through various mechanisms may also vary by SES, particularly among an urban sample. Indeed, for low-income, urban youth, rates of gang involvement and deviant peer and personal behavior are high compared to middle- and high-SES counterparts, particularly when engaged in unstructured and unsupervised time with friends (Goldner et al., 2011; Kerrebrock & Lewit, 1999; Pettit, Bates, Dodge, & Meece, 1999; Richards et al., 2004).

As such, the role of OAs as contexts that promote social norms and interaction amongst peers with positive peer characteristics may be particularly important for low-income urban youth.

Similarly, adolescents living in poor urban areas are exposed to violence more frequently than adolescents living in middle and upper class neighborhoods (Gladstein et al., 1992; Fauth et al., 2007). Thus, OAs ability to provide physical safety from community violence exposure may be more relevant for low-income youth. As such, SES will be examined as a moderator of the meditational path from OA involvement to community violence exposure.

## CHAPTER THREE

### SPECIFIC AIMS

#### **Aim 1**

Controlling for family socioeconomic status, examine whether neighborhood characteristics (i.e., perceived neighborhood safety and neighborhood collective efficacy) and parent characteristics (i.e., parental supervision and parental warmth) at Wave 1 predict concurrent participation in OA at Wave 1 (intensity) and longitudinal participation in organized activities (OA) at Waves 2 and 3 (type, breadth).

**Aim 1a.** Examine whether the relation between neighborhood/parent characteristics and OA involvement at each time point varies by age and sex.

#### **Aim 2**

Examine whether community violence exposure (victimization and witnessing) and peer characteristics (positive characteristics and deviancy) in middle adolescence mediate the relation between OA involvement in early adolescence and developmental outcomes in later adolescence, including psychological adjustment (internalizing and externalizing symptoms), delinquency, substance use, and self-efficacy.

**Aim 2a.** Examine whether sex and SES moderates the indirect mediational effect of community violence exposure and peer characteristics on the relation between OA involvement and each developmental outcome.

## CHAPTER FOUR

### METHOD

#### **Participants, Design, and Procedures**

Data for this study was drawn from the Project on Human Development in Chicago Neighborhoods (PHDCN), a longitudinal study collected over seven years from a sample of 6,000 children and their primary caregivers nested within 80 Chicago neighborhoods representative of the socioeconomic and racial/ethnic heterogeneity within the city. PHDCN comprises several sub-studies, including the Longitudinal Cohort Study and the Community Survey, both of which are described in more detail below.

**Longitudinal cohort study.** Participants were recruited using a multi-stage sampling strategy. First, findings from cluster analyses of 1990 U.S. Census data, knowledge of Chicago neighborhoods, and observations of geographic boundaries (e.g., railroad tracks, parks, and freeways) were used to assign each of Chicago's 847 census tracts to one of 343 neighborhood clusters (NCs). The resulting NCs were then stratified by ethnic composition (7 categories) and SES (3 categories: high, medium, and low), yielding 21 strata. Roughly equal numbers of NCs were randomly selected from all but three empty strata—low SES primarily White NCs, high SES primarily Latino NCs, and high SES primarily Black and Latino NCs, with the goal of representing the 21 cells as equally as possible to eliminate the confounding between racial/ethnic mix and socioeconomic status. This yielded a final representative sample of 80 NCs. Once the 80

NCs were chosen, then block groups were selected at random within each of the sample neighborhoods. A complete listing of dwelling units was collected for all sampled block groups. Approximately 35,000 households within these 80 NCs were randomly selected and screened for eligibility. Pregnant women, children, and young adults in seven age cohorts (birth, 3, 6, 9, 12, 15, and 18 years) were identified through in-person screening of approximately 40,000 dwelling units within the 80 NCs. The screening response rate was 80 percent. Children within six months of the birthday that qualified them for the sample were selected for inclusion in the Longitudinal Cohort Study. A total of 8,347 participants were identified through the screening. Of the eligible study participants, 6,234 children and adolescents in seven age groups (ages 0, 3, 6, 9, 12, 15, and 18 years), or cohorts, were interviewed for the first wave of data collection. Wave 2 and 3 assessments were administered at approximately 2- to 2½-year intervals (i.e., the second wave of data collection occurred between 1997 and 1999; and the third wave of data was collected between 2000 and 2001).

Retention rates were relatively high; 86% of the original sample enrolled at Wave 2 and 77% of the original sample enrolled at Wave 3 (Martin & Schoua-Glusberg, 2002). At each assessment, youth and primary caregivers completed measures of functioning in a wide variety of physical, social, psychological, behavioral, and academic domains. For all cohorts except 0 and 18, primary caregivers as well as the child were interviewed. The primary caregiver was the person found to spend the most time taking care of the child. Separate research assistants administered the primary caregiver interviews and the

child interviews. The primary method of data collection was face-to-face interviewing, although participants who refused to complete the personal interview were administered a phone interview. Depending on the age and wave of data collection, participants were paid between \$5 and \$20 per interview. Other incentives, such as free passes to museums, the aquarium, and monthly drawing prizes were included.

The youth-level sample for the present study, which focuses exclusively on adolescents, was drawn from the 9- and 12-year-old cohorts (i.e., those who were 9 or 12 at Wave 1;  $N = 1,632$ ). We limited the analytic sample to youth who were assessed at each of the three time points included in our analyses (i.e., Waves 1, 2, and 3).

Additionally, we included only youth with complete demographic data. The remaining 1,043 youth were, on average 10.65 years old ( $SD = 1.53$ ) at Wave 1, 12.70 years ( $SD = 1.61$ ) at Wave 2, and 15.22 years ( $SD = 1.58$ ) at Wave 3. The sample was evenly split by gender (49.0% female) and ethnically diverse (46.4% Hispanic, 35.4% African American, 14.0% Caucasian, and 4.2% other). Over half of youth lived with two married biological parents (57.2%); 36.9% of youth's primary caregivers had some education beyond high school. Youth, on average, came from homes with a per capita annual income of \$6,071 ( $SD = \$5,027$ ). See Table 1 for descriptive statistics on demographic and all other study variables.

To determine whether attrition between Waves 1 and 3 introduced a source of bias, we used univariate tests to compare the demographic composition of the analytic sample to the full sample of youth from Cohorts 9 and 12. These analyses did not reveal significant differences between the two samples with respect to gender composition,

ethnic composition, cohort composition, primary caregiver education, or annual household income.

**Community survey.** Data on neighborhood collective efficacy and perceived neighborhood safety were drawn from the Community Survey. For the Community Survey, representative households from each of the 343 NCs that compose the city of Chicago were targeted for interviews focusing on neighborhood and community characteristics. The goal was to sample city blocks within each NC, dwellings within blocks, and, finally, individuals within dwellings to obtain a sample independent from the Longitudinal Cohort Study. Following the sampling procedures, in-home interviews were conducted with 8,782 individuals 18 years of age or older in 1994-1995 (75% respond rate). On average, 50 interviews were conducted in each of the 80 target NCs, and 20 interviews were conducted in each of the nontarget NCs- sizable samples for the construction of reliable measures within each NC. The present study will include neighborhood data independent of the study participants from 3,846 residents of the 80 stratified NCs (78% response rate).

### **Measures**

**Organized activity involvement.** At Wave 1, primary caregivers were administered the School Screen, an instrument developed specifically for the PHDCN project. Parents reported on whether their children were currently involved in, or had previously been involved in, each of two types of organized activities: school-based extracurricular activities and school- or community-based afterschool programs. Caregivers were then asked to report how many hours per week youth had participated in

these activities. Sports teams, school clubs, and music groups were given to caregivers as examples of the types of activities that could be considered extracurricular activities.

When reporting on youths' participation in afterschool programs, caregivers were asked to focus on formal afterschool programs (such as 21st Century Community Learning Centers, Boys and Girls Clubs, and the YMCA) rather than on extracurricular activities. Caregivers were told that such programs might focus on recreation, the arts, academics, or some other form of enrichment. Hours per week in extracurricular activities and afterschool programs were summed to yield an overall OA intensity index. This Wave 1 organized activity (OA) intensity index will be used to predict concurrent OA involvement and for mediational analyses examining mechanisms of the relation between OA and developmental outcomes.

At Wave 2 and 3, OA variables were constructed from the youth-reported school interview, which used a series of questions used in other studies of urban youth (Furstenberg et al., 1999). At Wave 2, students were asked whether or not they engaged (yes/no) in five different activities after school during the school year, included sports or cheerleading, performing arts (e.g., band, theater, drama, dance, choir), student government or student council, community-based clubs (e.g., YMCA, Boys or Girls Clubs), or church groups. At Wave 3, youth answered a slightly different assessment of their participation. They were asked about the frequency of their participation in the same five activities over the *past month*. Participants will be coded 0 = no participation, 1 = participation for their involvement in each of the five OA categories at Wave 2 and Wave 3. The sum of five activities youth participated at each wave will be computed to

capture breadth of participation (range 0 –5). Wave 2 and 3 OA data will be used in models examining parent and neighborhood predictors of OA involvement. Parent and neighborhood variables will be examined in relation to OA type and breadth at Wave 2 and 3.

Table 1. Organized Activity Variables by Wave

<b>OA Variable</b>	<b>Wave 1</b>	<b>Wave 2</b>	<b>Wave 3</b>	<b>Model Used For</b>
<b>Intensity</b>	Sum of parent report of hrs/week in extracurricular activities and afterschool programs	--	--	Predictor (Concurrent) Mediation
<b>Type</b>	--	Youth report of participation (0/1) in each of 5 OAs (sports, performing arts, student government, community-based clubs, or church) during past year	Youth report of participation (0/1) in each of 5 OAs (sports, performing arts, student government, community-based clubs, or church) during past month	Predictor (Longitudinal)
<b>Breadth</b>	--	Sum of 5 OAs youth participated in (range 0-5)	Sum of 5 OAs youth participated in (range 0-5)	Predictor (Longitudinal)

**Community violence exposure.** Community violence exposure was assessed using items from the Exposure to Violence (Subject version). A version of this measure was administered to youth at all three waves of data collection; however, Wave 2 data will be used in the current study. The PHDCN version of the ETV was adapted from the most widely used measure of exposure to violence, the Survey of Children's Exposure to Community Violence (SECV; Richters & Martinez, 1993; Richters & Saltzman, 1990; Selner-O'Hagen et al., 1998), which was designed to assess the frequency with which a child victimized by, witnessed, or heard about 20 different forms of violence and

violence related activities, including getting shoved, kicked, or punched, getting attacked with a knife, and getting shot or shot at. For each item, the child answered (yes/no) whether they had seen the described violent activity (witnessing), and whether the violent activity had ever happened to them (victimization). If they responded yes, they were asked to indicate whether the activity had occurred once, or more than once. For each item, a child received a 0 if the activity had not occurred, 1 if the activity had occurred once, and a 2 if the activity had occurred more than once. Responses were summed for the set of witnessing and victimization questions to yield an overall witnessing scale and an overall victimization scale. Higher scores on these scales indicate more witnessing or victimization. The SECV has demonstrated good reliability in previous studies. ( $\alpha = .71$  to  $.92$ ; Brandt, Ward, Dawes & Fleisher, 2005).

#### **Parental characteristics.**

***Parental supervision.*** Parental supervision was measured using 13 items from the Home Observation for Measurement of the Environment (Caldwell & Bradley, 1984). This scale includes items such as “Is the subject let in public without supervision?” and “Does the primary caregiver have a set time (curfew) to be home on school and weekend nights?” Items were coded yes (1) or no (0) by the trained interviewer and summed to yield an overall parental supervision scale, with higher scores indicating more parental supervision. A version of the Home Observation for Measurement of the Environment was administered at all three waves of data collection. Wave 1 data will be used in analyses predicting OA involvement, and Wave 2 data will be used in mediational

analyses. Past research with this dataset has shown adequate reliability ( $\alpha = .50$ ; Gibson, Sullivan, Jones, & Piquero, 2010).

***Parental warmth.*** Parental warmth was measured using 9 items from the Home Observation for Measurement of the Environment (Caldwell & Bradley, 1984). This scales includes items such as “When speaking of or to subject, primary caregiver’s voice conveys positive feelings”, and “Primary caregiver spontaneously praises subject’s qualities or behavior twice during the visit.” Items were coded yes (1) or no (1) by the trained interviewer and summed to yield an overall parental supervision scale, with higher scores indicating more parental warmth. A version of the Home Observation for Measurement of the Environment was administered at all three waves of data collection. Wave 1 data will be used in analyses predicting OA involvement, and Wave 2 data will be used in mediational analyses.

***Peer characteristics.*** The Deviance of Peers (Huizinga, Esbenson, & Weiher, 1991) scale 36-item self-report interview was used as a measure of peer relationships. For each question, the participant was asked to answer how many of their friends (1= never to 3 =all) are involved in conventional and delinquent activities. For the current study, items were divided into those that captured positive peer influence (e.g., “Number of friends who are considered good students” and “Number of friends who are generally honest and tell the truth”) and peer deviancy (e.g. “Number of friends who get in trouble at home” and “Number of friends that entered a building to steal”). The Deviance of Peers scale was administered at all three waves of data collection; however, data from Wave 2 will be used in the current study. Both the Positive Peer Influence (9 items;  $\alpha =$

.61) and the Peer Deviancy (21 items;  $\alpha = .85$ ) subscales demonstrated adequate reliability in this sample.

### **Neighborhood characteristics.**

*Collective efficacy.* Ratings of perceptions of neighborhood collective efficacy were drawn from the Community Survey at Wave 1 of data collection. This measure was aggregated from a sum of Neighborhood Social Cohesion and Neighborhood Social Control (Sampson et al., 1997). Neighborhood Social Cohesion was a sum of 5 items (strongly disagree to strongly agree) about residents' willingness to help, trust each other, get along, share the same values, and perceive the community as close-knit.

Neighborhood social control (5 items) captured perception of neighborhood boundaries, that is, neighbors will intervene if children are skipping school, hanging out on a street corner, or spray-painting graffiti. This measure has demonstrated good reliability in past research with this dataset ( $\alpha = .79$ , Cooley-Strickland et al., 2009).

*Neighborhood safety.* Ratings of perceptions of neighborhood violence were drawn from the Community Survey at Wave 1 of data collection. Respondents to the Community Survey were asked to rate the frequency from 1 (never) to 4 (often) with which they observed five types of violent acts, such as fights with weapons, gang fights, and sexual assaults or rape, in the past 6 months within their neighborhoods. The mean of the five items was computed to formulate the perceived violence scale.

### **Developmental outcomes.**

*Psychological adjustment.* The Child Behavior Checklist (CBCL; Achenbach, 1991) was a parent-report questionnaire on which the child was rated on various

behavioral and emotional problems at Waves 1, 2, and 3. The CBCL is one of the most widely-used standardized measures in child psychology for evaluating maladaptive behavioral and emotional problems in youth between the ages of 4 and 18. Psychological adjustment was assessed via the internalizing (i.e., anxious, depressive, and overcontrolled) and externalizing (i.e., aggressive, hyperactive, noncompliant, and undercontrolled) scales. Both the internalizing and externalizing scales of the CBCL have demonstrated good reliability in previous studies with this sample ( $\alpha > .80$ ; Fauth et al., 2007; Gardner et al., 2012).

Additionally at Waves 2 and 3, the Youth Self-Report (YSR; Achenbach, 1991) was given to youth participants, which parallels the CBCL and includes the same scales. The CBCL and YSR internalizing ( $r = 0.53$ ) and externalizing ( $r = 0.64$ ) scales were significantly correlated, and as such were combined into a single parent/child composite score for each scale.

***Delinquency.*** Youth's delinquency in the past year was assessed with a self-report measure used in several large studies of youth behavior (Elliot et al., 1996; Farrington, Loeber, Stouthamer-Loeber, Kammen, & Schmidt, 1996; Sampson, Morenoff, & Raudenbush, 2005). At each wave, youth indicated whether (0 = no, 1 = yes) they had engaged in 15 different delinquent behaviors in the past year, such as attacking someone with a weapon, snatching a purse or picking a pocket, or engaging in gang fighting. Delinquent behavior will be computed by summing the number of delinquent acts youth engaged in at each wave (possible range = 0-15). Previous research with this dataset has demonstrated that the number of youth who engaged in five or more delinquent acts

during a given year at each wave was extremely low (Fauth et al., 2007). Following this previous work, the scale was top-coded at 5 (i.e., all responses greater than five were recoded to five, indicative of 5 or more delinquent acts). This measure has demonstrated good reliability in past research with this dataset ( $\alpha = .64$ , Fauth et al., 2007).

**Substance use.** Substance use over the past month was assessed via youth report. At each wave, youth reported the number of times in the month prior to the interview they had drunk alcohol (including beer, wine, and liquor) or used marijuana. Responses were originally coded on a 6-point scale ranging from 0 (never) to 5 (21 or more times in the past month). However, previous research with this dataset has demonstrated a lack of variability at the high end of the scale and has used a 4-point scale where 0 = never, 1 = 1-2 times, 2 = 3-5 times, and 3 = more than 6 times in the past month (Fauth et al., 2007). Using this coding, the top end of the scale represents drinking or smoking marijuana once a week or more in the past month. The substance use scale was computed by averaging youth's scores on the two items at each wave (range = 0-3). This measure has demonstrated adequate reliability in past research with this dataset ( $\alpha = .57$ , Fauth et al., 2007).

**Self-efficacy.** The Things I Can Do If I Try survey is a self-report self-efficacy instrument designed for children. This instrument was developed specifically for the PHDCN design. It included an assessment of efficacy in five domains: future, school, neighborhood, home, and social. At Waves 2 and 3, youth were asked to choose between a series of 30 self-describing statements, and then decide if the statement was "very true" or "sort of true" for them. Examples of statements include "some kids feel like they have

control over what will happen to them in the future, BUT other kids feel like they do not have control over what happens to them in the future”, and “some kids find, even when they try, it is hard to get kids their age to like them, BUT other kids think if they try they can get other people their age to like them.” Scores were summed to yield self-efficacy scores in each of 5 domains (future, school, neighborhood, home, and social). For the current study, overall scores on each self-efficacy domain were summed and averaged to yield an overall self-efficacy score for each time point.

### **Analytic Strategy**

**Data preparation.** The data were examined for outliers and skewness (Tabachnick & Fidell, 1996). All values, with the exception of peer deviancy, internalizing symptoms, externalizing symptoms, and self-efficacy, fell within an acceptable range ( $sk_p < |1.0|$ ). To correct for skewness, a square root transformation was used, after which all values fell within the acceptable range ( $sk_p < |1.0|$ ). For all subsequent analyses, with the exception of descriptive analyses, the transformed variables were used. In order to avoid convergence issues, which are common in large datasets and complex models, all parenting and neighborhood variables were normalized (rescaled to have a mean of zero and standard deviation of one) prior to conducting predictor model analyses.

**Treatment of missing data.** Missing data were multiply imputed using the multivariate Imputation by Chained Equations (MICE) package in R, which uses plausible values substitution via predictive mean matching. Multiple imputation was conducted using four sequential steps recommended by von Hippel (2007): (1) generate

multiple (100) copies of a data set, (2) substitute plausible values for all missing values in each data set (conditional on the observed values in the data set and random error), (3) analyze each imputed dataset separately, and (4) combine estimates from separate analyses of each imputed data set. We generated 100 imputed data sets (current guidelines recommend generating at least 20 data sets; Enders, 2010), using all of the independent and dependent variables.

**General analytic approach.**

*Predictor models.* Seven two-level hierarchical regression models were tested to examine the relations between parent and neighborhood characteristics and OA involvement at Waves 1 (early adolescence: OA intensity), 2 (middle adolescence: OA breadth and 5 OA types), and 3 (late adolescence: OA breadth and 5 OA types). Models were tested using multilevel generalized linear modeling techniques in the R software (Faraway, 2006). For the Wave 1 OA intensity and Wave 2/3 OA breadth models, mixed effects negative binomial regression models were used, as they best fit continuous count data (Faraway, 2006). The OA breadth model predicted both Wave 2 and 3 OA breadth outcomes, while including Wave 1 OA intensity as a covariate. For the Wave 2 and 3 models of OA type, mixed effects logistic regression models were fitted for each OA type, as is recommended for binary variable outcomes (Faraway, 2006). Each model predicted participation in each OA type (i.e., sports, performing arts, student government, community-based clubs, and church) at Waves 2 and 3, while including Wave 1 OA intensity as a covariate. To predict OA involvement (e.g., intensity, breadth and type), each model followed the following hierarchical structure; for subject  $i$  in neighborhood  $j$ ,

OA outcome ( $Y_{ij}$ ) is modeled by:

Individual Level 1:

$$G(Y_{ij}) = \beta_0j + \beta_1(\text{SES}) + \beta_2(\text{Sex}) + \beta_3(\text{Age/Cohort}) + \beta_4(\text{P Warmth}) + \beta_5(\text{P Supervision}) + r_{ij} .$$

Neighborhood Level 2:

$$\beta_0j = \gamma_1(\text{NCE}) + \gamma_2(\text{NC PVIOL}) + \epsilon_j$$

where  $G()$  denotes the negative binomial log-link function,  $r_{ij}$  is the individual level error term, and  $\epsilon_j$  is the neighborhood level error term. Consistent with Faraway (2006) recommendations, interaction effects between parent and neighborhood characteristics and sex and age were examined by testing the fit of an additional model that included interaction terms for sex and age at both the individual (parent characteristics) and neighborhood level (neighborhood characteristics). Finally, following recommendations by Faraway (2006), model comparison hypothesis testing was conducted to compare the models with and without interactions and determine whether the more complex model, (which included interactions for age and sex) was sufficiently better in terms of its ability to explain the variation in the OA outcome.

***Mediation models.*** Twenty mixed effects generalized linear mediation models (4 mediators and 5 outcome variables) were tested to determine whether relations between OA intensity and developmental outcomes were mediated by peer characteristics and community violence exposure. Bootstrapping analyses, including bias-corrected and accelerated (BCa) confidence intervals (CIs, 95%), were used to test the models (see Preacher and Hayes, 2008; Preacher, Rucker, & Hayes, 2007) using a bootstrapped

sample of  $n = 5,000$ . Models were tested using the R mediation package for causal mediation analysis (Imai et al., 2010; Tingley, Yamamoto, Hirose, Keele, & Imai, 2014). The mediation analysis proceeds in two steps. First, we fit the mediator model where the mediator [(peer characteristics: positive or deviancy) (community violence exposure: witnessing or victimization)] is modeled as a function of OA intensity and the covariates (SES, age, and sex). To account for the multilevel nature of the data, the structure of the mediation model for subject  $i$  in neighborhood  $j$ , and the mediating variable,  $M_{ij}$ , is modeled by:

Individual Level 1:

$$F(M_{ij}) = \eta_j + v_1(\text{OA Intensity}) + v_2(\text{SES}) + v_3(\text{Sex}) + v_4(\text{Cohort}) + e_{ij}$$

Neighborhood Level 2:

$$\text{beta}_j = \eta + \phi_j,$$

where  $\eta$  is some common intercept,  $F(\cdot)$  is a link function,  $e_{ij}$  is the individual level random error, and  $\phi_j$  is the neighborhood level random error.

In the second step, we modeled the outcome variable (internalizing symptoms, externalizing symptoms, delinquency, substance use, or self-efficacy), given the mediator, covariates, and OA intensity. To account for the multilevel nature of the data, the general structure of each outcome model for subject  $i$  in neighborhood  $j$ , the outcome ( $Y_{ij}$ ) is modeled by:

Individual Level 1:

$$G(Y_{ij}) = \beta_j + \gamma_1(\text{OA Intensity}) + \gamma_2(\text{Mediator}) + \gamma_3(\text{SES}) + \gamma_4(\text{Sex}) + \gamma_5(\text{Cohort age}) +$$

$\varepsilon_{ij}$ ,

Neighborhood Level 2:

$\beta_j = \beta + \varphi_j$ ,

where  $\beta$  is some common intercept,  $G$  is a link function,  $\varepsilon_{ij}$  is the individual random error, and  $\varphi_j$  is the neighborhood level random error. These models are fitted separately and then their fitted estimates are used to compute the estimated average causal mediation effect (ACME), average direct effect (ADE), and Total Effect.

After testing the initial mediation models, moderated mediation models were examined to determine whether the average causal mediation effect (ACME) varied by sex or SES. To do so, each mediation model was fitted including the moderator and its interaction terms with respect to OA intensity and the mediator. Next, we specified the levels of the moderator for each effect (0/1 for male/female, and 0/1 for low SES/high SES), and performed separate mediation analyses for each level of the moderator (i.e., 20 mediation models x 2 moderators x 2 levels). For example, for the mediation model examining positive peer characteristics as a mediator, we ran one mediation model for males, one for females, one for high SES, and one for low SES. Model estimates and significance levels were then compared for each level of the moderator (i.e., male versus female mediation models, and high- versus low-SES mediation models) to determine whether mediation models significantly differed.

## CHAPTER FIVE

### RESULTS

#### Descriptive Statistics

Mean levels of all study variables are listed in Table 2. The average Wave 1 OA intensity for participants was 5.95 hours/week ( $SD=5.40$ ). The average breadth of OA involvement at Wave 2 was 2.00 activities ( $SD=1.31$ ), and at Wave 3 was 1.93 activities ( $SD = 1.32$ ). Consistent with prior research on OA type, sports had the highest rates of participation at both Wave 2 (53%) and Wave 3 (23%), followed by performing arts activities (Wave 2 = 42%, Wave 3 = 20%). Participation in all five OA types decreased from Wave 2 to Wave 3 (see Table 2).

Univariate tests were run to examine sex and ethnic group differences on all variables of interest. When comparing males and females, females reported significantly higher participation in church ( $t = 2.48, p < .05$ ) and performing arts activities ( $t = 6.96, p < .001$ ) and greater breadth of activities ( $t = 2.26, p < .05$ ) at Wave 2, and higher participation in student government activities ( $t = 2.77, p < .01$ ) at Wave 3, while males reported higher participation in sports ( $t = -4.79, p < .001$ ) at Wave 2. Females also reported significantly higher internalizing symptoms ( $t = 7.41, p < .001$ ) at Wave 3, while males reported higher delinquency ( $t = -4.99, p < .001$ ), substance use ( $t = -3.75, p < .001$ ), and community violence exposure witnessing ( $t = -4.15, p < .001$ ) and victimization ( $t = -4.44, p < .001$ ). Significant ethnic groups differences emerged for OA

breadth ( $F = 15.95, p < .001$ ), and involvement in church ( $F = 11.56, p < .001$ ), community ( $F = 15.11, p < .001$ ), and sport activities ( $F = 9.80, p < .001$ ) at Wave 2, and for OA breadth ( $F = 4.93, p < .01$ ) at Wave 3. Results also indicated significant differences among ethnic groups for community violence exposure witnessing (Wave 2;  $F = 16.72, p < .001$ ), and externalizing symptoms ( $F = 20.05, p < .001$ ), delinquency ( $F = 16.95, p < .001$ ), and self-efficacy (Wave 3;  $F = 6.32, p < .01$ ). Compared to Hispanic adolescents, African American and Caucasian adolescents had greater breadth of OA at Wave 2, were more likely to be involved sport activities at Wave 2. African American adolescents were also more likely to be involved in church and community activities at Wave 2, and had higher externalizing problems and delinquency at Wave 3 than Hispanic adolescents. Caucasian adolescents also had lower levels of self-efficacy and community violence exposure witnessing than Hispanic adolescents. Compared to African American adolescents, Caucasian adolescents had less breadth of OA at Waves 2 and 3, and had fewer externalizing problems, less delinquency, and less community violence exposure witnessing at Wave 3.

Table 2. Descriptive Statistics for all Study Variables

<i>Variables</i>	<i>Percent of Sample (%)</i>	<i>Mean (SD)</i>
Age (Wave 1)	-	10.65 (1.53)
Male	51.0	-
Race and ethnicity		
Hispanic	46.4	-
African American	35.4	-
Caucasian	14.0	-
Other	4.2	-
Household per capita income (Wave 1)	-	6,071 (5,027)
Neighborhood Collective Efficacy <sup>a</sup>	-	7.20 (0.60)
Neighborhood Perceived Violence <sup>a</sup>	-	1.98 (0.36)
OA Intensity (Wave 1)	-	5.95 (5.40)
OA Breadth (Wave 2/ Wave 3)	-	2.00 (1.32)/ 1.93 (1.32)
OA Type (Wave 2/Wave 3)		
Church <sup>a</sup>	31.5/10.2	-
Student Government <sup>b</sup>	15.0/7.0	-
Community Clubs <sup>b</sup>	21.6/9.0	-
Performing Arts <sup>b</sup>	42.6/20.0	-
Sports <sup>b</sup>	53.7/23.1	-
Peer Deviancy (Wave 2)	-	11.71 (3.57)
Positive Peer Influence (Wave 2)	-	11.63 (2.38)
CVE: Witnessing (Wave 3)	-	1.70 (1.91)
CVE: Victimization (Wave 3)	-	0.40 (0.80)
Internalizing Symptoms <sup>c</sup> (Wave 3)	-	9.96 (7.74)
Externalizing Symptoms <sup>c</sup> (Wave 3)	-	8.10 (6.15)
Delinquency (Wave 3)	-	0.53 (1.16)
Substance Use (Wave 3)	-	0.55 (0.72)
Self-efficacy (Wave 3)	-	10.10 (2.51)

<sup>a</sup> data from the Community Survey, <sup>b</sup> percent involved <sup>c</sup> parent/child composite score

### Correlations

Correlation analyses were run to examine relations between demographic variables (age, SES) and other study variables. Results indicated that age was significantly positively associated with OA intensity, peer deviancy, community violence

exposure witnessing and victimization, internalizing and externalizing symptoms, delinquency, and substance use. Age was negatively associated with parental supervision, and participation in performing art (Wave 2) and sports (Wave 3) activities.

Socioeconomic status was significantly positively associated with parental warmth, parental supervision, OA breadth (Wave 2), and performing art and sport participation (Wave 2), and inversely linked with community violence exposure witnessing, neighborhood perceived violence, internalizing and externalizing symptoms, and self-efficacy. Additionally, parent and neighborhood characteristics were highly correlated across waves ( $r_s = .62-71$ ).

### **Parenting and Neighborhood Variables Predicting OA Participation**

#### **Predicting Wave 1 OA intensity.**

*Parent and neighborhood effects.* Results of the model examining parent and neighborhood characteristics predicting OA intensity at Wave 1 (see Table 3) indicated that the effect of parental supervision on OA intensity was significant ( $\gamma = 0.07, p < .05$ ). This suggests that an increase in parental supervision in early adolescence corresponds to increased intensity of OA involvement in early adolescence (Wave 1). Analyses also revealed a significant effect of neighborhood perceived violence on OA intensity ( $\gamma = 0.22, p < .001$ ), suggesting that higher levels of neighborhood violence in early adolescence are associated with increased intensity of OA involvement in early adolescence. Parental warmth and neighborhood collective efficacy did not significantly predict OA intensity at Wave 1.

**Moderator effects: Age and sex.** Results of the models examining age and sex as moderators of the relation between parent or neighborhood characteristics and OA intensity indicated that none of the interaction effects were significant. This suggests that the relation between parent and neighborhood characteristics and OA intensity did not vary by sex or age. To confirm these results, model comparison hypothesis testing was conducted to compare the models with and without interactions. Results indicated that the simpler model (e.g., the model that did not allow the effects of the predictor variables on OA to differ between age or sex), sufficiently explained the variation in OA intensity when compared to the model that allowed these effects to vary for each moderator (i.e., included interaction effects) ( $\chi^2(8) = 10.07, p = .26$ ). As such, the simpler model was used as the final model for interpretation of main effects (see Table 3).

Table 3. Predicting Wave 1 OA Intensity

Predictors	$\gamma$ (se)
<i>Individual Level</i>	
Intercept	1.60 (0.06)***
SES	0.20 (0.31)
Age (Cohort 12)	0.22 (0.06)***
Sex	0.03 (0.05)
Parental Warmth	0.02 (0.03)
Parental Supervision	0.07 (0.03)*
<i>Neighborhood Level</i>	
Neighborhood Collective Efficacy (NCE)	0.12 (0.06)
Neighborhood Perceived Violence (NPV)	0.22 (0.05)***

Note.  $p < .05$  \*,  $p < .01$  \*\*,  $p < .001$  \*\*\*.

### **Predicting Wave 2 and 3 OA breadth.**

**Parent and neighborhood effects.** Results of the model examining parent and neighborhood characteristics predicting OA breadth at Waves 2 and 3 (see Table 4) indicated that the effect of parental supervision on OA breadth was significant across

both waves ( $\gamma = 0.08, p < .001$ ). This suggests that an increase in parental supervision in early adolescence corresponds to increased breadth of OA involvement during middle and late adolescence (e.g., Wave 2 and Wave 3). Analyses also revealed a significant effect of neighborhood collective efficacy on OA breadth for both waves ( $\gamma = 0.06, p < .05$ ), suggesting that higher levels of neighborhood collective efficacy in early adolescence is associated with increased breadth of OA involvement during middle and late adolescence. Parental warmth and neighborhood perceived violence did not significantly predict OA breadth at Wave 2 or 3.

***Moderator effects: Age and sex.*** Results of the models examining age and sex as moderators of the relation between parent or neighborhood characteristics and OA breadth indicated that none of the individual interaction effects examining parent or neighborhood characteristics x age and parent or neighborhood characteristics x sex predicting OA breadth were significant. This suggests that the relation between parent and neighborhood characteristics and OA breadth did not vary by sex or age at Wave 2 or 3. To confirm these results, model comparison hypothesis testing was conducted to compare the models with and without interactions. Results indicated that the simpler model (e.g., the model that did not allow the effects of the predictor variables on OA to differ between age or sex), sufficiently explained the variation in OA breadth when compared to the model that allowed these effects to vary (i.e., included interaction effects) ( $\chi^2(16) = 7.54, p = .96$ ). As such, the simpler model was used as the final model for interpretation of main effects (see Table 4).

Table 4. Predicting Wave 2 and Wave 3 OA Breadth

Predictors	$\gamma$ (se)
<i>Individual Level</i>	
Intercept	-0.91 (0.04)***
SES	0.08 (0.51)**
Age (W2, Cohort 12)	0.22 (0.06)
Age (W3, Cohort 9)	-0.02 (0.06)
Age (W3, Cohort 12)	-0.04 (0.06)
Sex	-0.07 (0.04)
OA Intensity (W1)	0.12 (0.05)*
Parental Warmth	0.01 (0.02)
Parental Supervision	0.08 (0.02)***
<i>Neighborhood Level</i>	
Neighborhood Collective Efficacy (NCE)	0.06 (0.03)*
Neighborhood Perceived Violence (NPV)	0.04 (0.03)

Note.  $p < .05$  \*,  $p < .01$  \*\*,  $p < .001$  \*\*\*.

### Predicting Wave 2 and 3 OA activity type.

**Parent and neighborhood effects.** Results of the models examining parent and neighborhood characteristics predicting OA types (church, student government, community clubs, performing arts, and sports) at Waves 2 and 3 (see Table 5) indicated that effect of parental supervision on church ( $\gamma = 0.14, p < .05$ ), student government ( $\gamma = 0.14, p < .05$ ), performing arts ( $\gamma = 0.24, p < .001$ ), and sport ( $\gamma = 0.17, p < .01$ ) activities was significant across both waves. This suggests that an increase in parental supervision in early adolescence corresponds to an increased probability of church, student government, performing arts, and sports activity involvement during middle and late adolescence (e.g., Wave 2 and Wave 3). Analyses also revealed a significant effect of neighborhood collective efficacy ( $\gamma = 0.24, p < .01$ ) and neighborhood perceived violence ( $\gamma = 0.16, p < .05$ ) on church activity involvement for both waves. This suggests that higher levels of neighborhood collective efficacy and perceived violence in early

adolescence are associated with increased probability of church activity involvement during middle and late adolescence (e.g., Wave 2 and Wave 3). None of the parent or neighborhood variables significantly predicted probability of involvement in community clubs at Wave 2 or 3. Additionally, parental warmth did not significantly predict probability of participation in any OA type at Wave 2 or 3.

***Moderator effects: Age and sex.*** Results of the models examining age and sex as moderators of the relation between parent or neighborhood characteristics and OA types indicated that none of the individual interaction effects examining parent or neighborhood characteristics x age and parent or neighborhood characteristics x sex predicting OA types were significant. This suggests that the relation between parent and neighborhood characteristics and OA types (church, student government, community clubs, performing arts, and sports) did not vary by sex or age at Wave 2 or 3. To confirm these results, model comparison hypothesis testing was conducted to compare the models with and without interactions. Results indicated that the simpler models (e.g., the model that did not allow the effects of the predictor variables on OA to differ between age or sex), sufficiently explained the variation in church ( $\chi^2(16) = 18.56, p = .29$ ), student government ( $\chi^2(16) = 7.85, p = .95$ ), community club ( $\chi^2(16) = 11.39, p = .78$ ), performing art ( $\chi^2(16) = 12.68, p = .69$ ), and sport ( $\chi^2(16) = 23.54, p = .19$ ) activity involvement, when compared to the models that allowed these effects to vary (i.e., included interaction effects). As such, the simpler models were used as the final models for interpretation of main effects (see Table 5).

Table 5. Predicting Wave 2 and Wave 3 OA Type

Predictors	Model 1: OA	Model 2: OA	Model 3: OA	Model 4: OA	Model 5: OA
	Church	Government	Community	Performing Arts	Sports
	$\gamma$ (se)				
<i>Individual Level</i>					
Intercept	0.33 (0.10)***	0.59 (0.10)***	-1.84 (0.17)***	-0.41 (0.10)***	-1.26 (0.14)***
SES	0.02 (0.39)	-0.05 (0.54)	-0.75 (0.33)	0.08 (0.30)**	0.06 (0.42)*
Age (W2, Cohort 12)	0.24 (0.12)*	-0.25 (0.12)*	0.31 (0.16)	0.05 (0.11)	0.06 (0.14)
Age (W3, Cohort 9)	-1.50 (0.16)***	-1.83 (0.19)***	0.50 (0.20)*	0.69 (0.15)***	2.12 (0.20)***
Age (W3, Cohort 12)	-1.51 (0.15)***	-1.67 (0.18)***	0.60 (0.19)**	0.74 (0.14)***	1.63 (0.18)***
Sex	0.36 (0.10)***	-0.75 (0.11)***	-0.11 (0.13)	-0.27 (0.10)**	0.10 (0.11)
OA Intensity (W1)	0.06 (0.19)	0.09 (0.10)	0.02 (0.10)	0.11 (0.07)*	0.21 (0.11)*
Parental Warmth	-0.01 (0.05)	-0.04 (0.05)	-0.01 (0.07)	0.04 (0.05)	0.02 (0.06)
Parental Supervision	0.14 (0.05)*	0.14 (0.06)*	0.09 (0.07)	0.24 (0.05)***	0.17 (0.07)**
<i>Neighborhood Level</i>					
Neighborhood Collective Efficacy (NCE)	0.24 (0.08)**	-0.04 (0.08)	0.16 (0.11)	0.08 (0.08)	0.20 (0.12)
Neighborhood Perceived Violence (NPV)	0.16 (0.08)*	-0.08 (0.08)	0.20 (0.11)	-0.03 (0.08)	0.22 (0.12)

Note.  $p < .05$  \*,  $p < .01$  \*\*,  $p < .001$  \*\*\*.

### Peers and Community Violence Exposure as Mediators

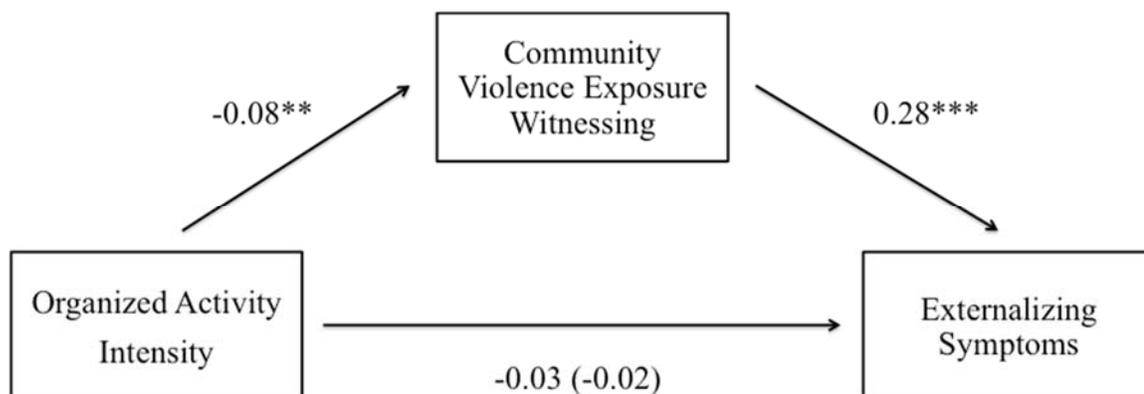
**Externalizing symptoms.** Analyses revealed no significant direct effect of OA intensity in early adolescence on externalizing symptoms in late adolescence. One significant indirect pathway was detected (see Table 6). Results indicated that OA intensity (Wave 1) and externalizing symptoms (Wave 3) were indirectly related through witnessing of community violence exposure (Wave 2; see Figure 1). This suggests that adolescents witness less community violence exposure during middle adolescence when they participate in more hours per week of activities during early adolescence, and in turn experience fewer externalizing symptoms in later adolescence. Moderated mediation analyses revealed no significant differences in the indirect effects of OA intensity on developmental outcomes based on sex or SES.

Table 6. Mediation Models Predicting Externalizing Symptoms

	Mediator: Peer Positivity	Mediator: Peer Deviancy	Mediator: CVE Victimization	Mediator: CVE Witnessing
	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)
ACME	(-0.02, 0.01)	(-0.01, 0.04)	(-0.01, 0.02)	(0.01, 0.04)*
ADE	(-0.03, 0.11)	(-0.05, 0.10)	(-0.05, 0.10)	(-0.06, 0.09)
Total Effect	(-0.04, 0.11)	(-0.05, 0.11)	(-0.04, 0.11)	(-0.04, 0.11)

LL = Lower Level, UL = Upper Level, ACME = Average Causal Mediation Effects, ADE = Average Direct Effects, BC = bias-corrected; CIs = Confidence Intervals

Figure 3. Community Violence Witnessing Mediating OA Intensity and Externalizing Symptoms



**Internalizing symptoms.** Analyses revealed a significant direct effect of OA intensity in early adolescence on internalizing symptoms in later adolescence, which suggests that adolescents who participated in more hours per week of activities in early adolescence experienced fewer internalizing symptoms in later adolescence. One significant indirect pathway was detected (see Table 7). Results indicated that OA intensity (Wave 1) and internalizing symptoms (Wave 3) were indirectly related through witnessing of community violence exposure (Wave 2; see Figure 2). This suggests that adolescents witness less community violence exposure in middle adolescence when they

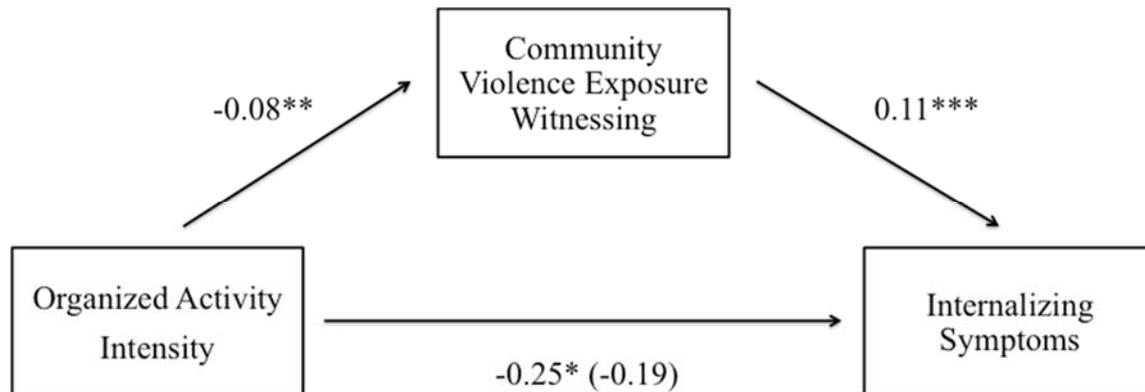
participate in more hours per week of activities in early adolescence, and in turn report fewer internalizing symptoms in later adolescence. Moderated mediation analyses revealed no significant differences in the indirect effects of OA intensity on developmental outcomes based on sex or socioeconomic status.

Table 7. Mediation Models Predicting Internalizing Symptoms

	Mediator: Peer Positivity	Mediator: Peer Deviancy	Mediator: CVE Victimization	Mediator: CVE Witnessing
	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)
ACME	(-0.02, 0.01)	(-0.01, 0.02)	(-0.01, 0.02)	(0.001, 0.18)*
ADE	(-0.13, -0.04)*	(-0.04, -0.001)*	(-0.04, -0.01)*	(-0.49, -0.20)*
Total Effect	(-0.14, 0.04)	(-0.03, -0.001)*	(-0.14, 0.04)	(-0.04, 0.001)*

LL = Lower Level, UL = Upper Level, ACME = Average Causal Mediation Effects, ADE = Average Direct Effects, BC = bias-corrected; CIs = Confidence Intervals

Figure 4. Community Violence Witnessing Mediating OA Intensity and Internalizing Symptoms



**Delinquency.** Mediation analyses revealed no significant direct effect of OA intensity in early adolescence on delinquency in later adolescence. One significant indirect pathway was detected (see Table 8). Results indicated that OA intensity (Wave 1) and delinquency (Wave 3) were indirectly related through witnessing of community violence exposure (Wave 2; see Figure 3). This suggests that adolescents witness less

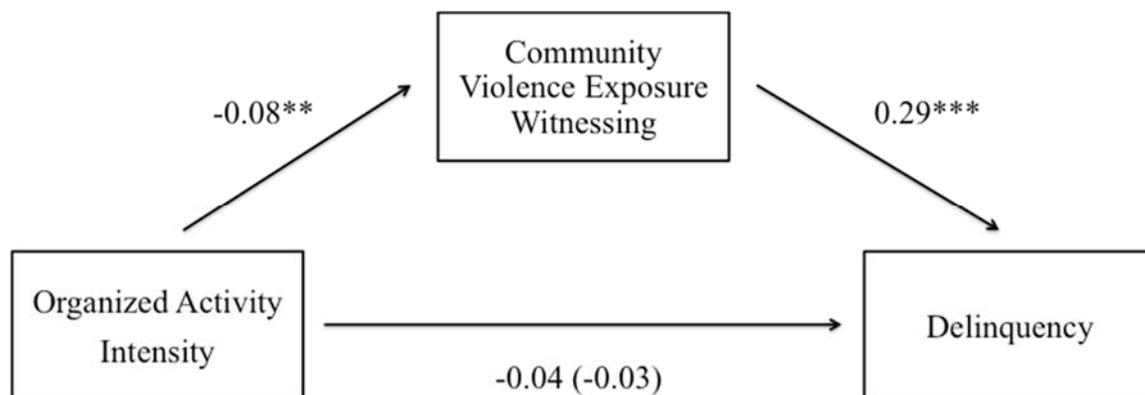
community violence exposure in middle adolescence when they participate in more hours per week of activities in early adolescence. Subsequently, adolescents report fewer delinquency behaviors in later adolescence. Moderated mediation analyses revealed no significant differences in the indirect effects of OA intensity on developmental outcomes based on sex or socioeconomic status.

Table 8. Mediation Models Predicting Delinquency

	Mediator: Peer Positivity	Mediator: Peer Deviancy	Mediator: CVE Victimization	Mediator: CVE Witnessing
	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)
ACME	(-0.01, 0.01)	(-0.01, 0.01)	(-0.01, 0.01)	(0.001, 0.02)*
ADE	(-0.04, 0.03)	(-0.04, 0.02)	(-0.04, 0.02)	(-0.04, 0.02)
Total Effect	(-0.04, 0.02)	(-0.04, 0.02)	(-0.04, 0.02)	(-0.04, 0.02)

LL = Lower Level, UL = Upper Level, ACME = Average Causal Mediation Effects, ADE = Average Direct Effects, BC = bias-corrected; CIs = Confidence Intervals

Figure 5. Community Violence Witnessing Mediating OA Intensity and Delinquency



**Substance use.** Analyses revealed no significant direct effect of OA intensity in early adolescence on substance use in later adolescence. One significant indirect pathway was detected (see Table 9). Results indicated that OA intensity (Wave 1) and substance use (Wave 3) were indirectly related through witnessing of community violence exposure (Wave 2; see Figure 4). This suggests that adolescents witness less community violence

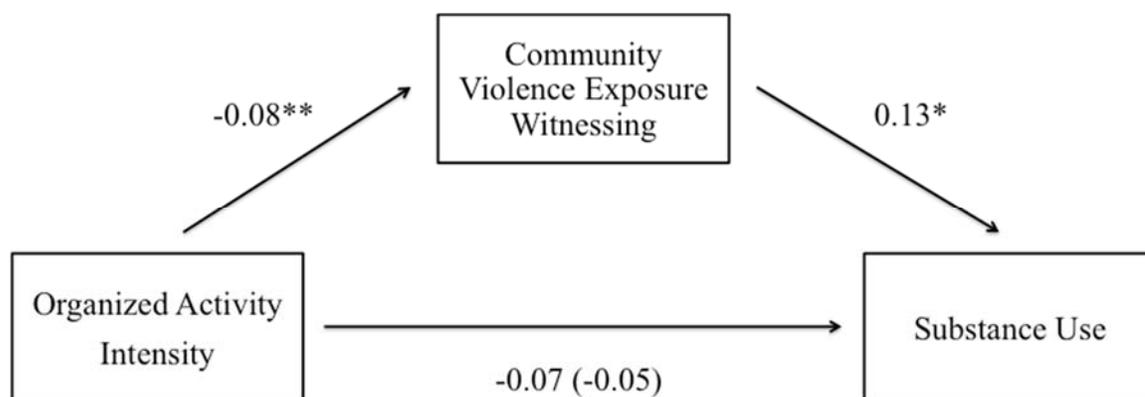
exposure during middle adolescence when they participate in more hours per week of activities during early adolescence. Subsequently, adolescents report substance use in later adolescence. Moderated mediation analyses revealed no significant differences in the indirect effects of OA intensity on developmental outcomes based on sex or socioeconomic status.

Table 9. Mediation Models Predicting Substance Use

	Mediator: Peer Positivity	Mediator: Peer Deviancy	Mediator: CVE Victimization	Mediator: CVE Witnessing
	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)
<i>ACME</i>	(-0.01, 0.01)	(-0.01, 0.01)	(-0.01, 0.01)	(0.001, 0.02)*
<i>ADE</i>	(-0.04, 0.06)	(-0.04, 0.05)	(-0.04, 0.05)	(-0.04, 0.05)
Total Effect	(-0.04, 0.06)	(-0.04, 0.06)	(-0.04, 0.06)	(-0.04, 0.06)

LL = Lower Level, UL = Upper Level, ACME = Average Causal Mediation Effects, ADE = Average Direct Effects, BC = bias-corrected; CIs = Confidence Intervals

Figure 6. Community Violence Witnessing Mediating OA Intensity and Substance Use



**Self-efficacy.** Mediation analyses revealed no significant direct effect of OA intensity in early adolescence on self-efficacy in later adolescence. One significant indirect pathway was detected (see Table 10). Results indicated that OA intensity (Wave 1) and self-efficacy (Wave 3) were indirectly related through witnessing of community violence exposure (Wave 2; see Figure 5). This suggests that adolescents witness less

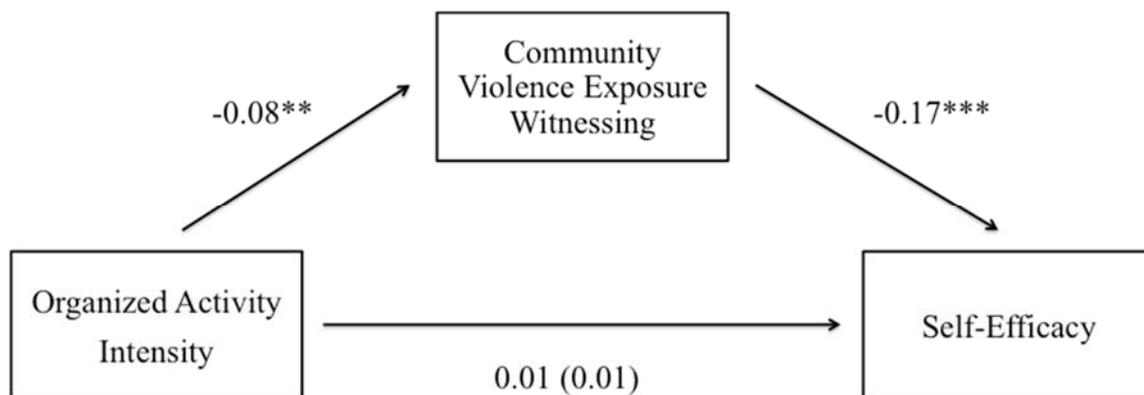
community violence exposure during middle adolescence when they participate in more hours per week of activities in early adolescence. Subsequently, adolescents report more self-efficacy in later adolescence. Moderated mediation analyses revealed no significant differences in the indirect effects of OA intensity on developmental outcomes for sex or socioeconomic status.

Table 10. Mediation Models Predicting Self-Efficacy

	Mediator: Peer Positivity	Mediator: Peer Deviancy	Mediator: CVE Victimization	Mediator: CVE Witnessing
	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)	95% BC CIs (LL, UL)
<i>ACME</i>	(-0.01, 0.01)	(-0.001, 0.01)	(-0.01, 0.01)	(0.001, 0.02)*
<i>ADE</i>	(-0.01, 0.03)	(-0.01, 0.03)	(-0.01, 0.03)	(-0.01, 0.03)
Total Effect	(-0.01, 0.03)	(-0.01, 0.03)	(-0.01, 0.03)	(-0.01, 0.03)

LL = Lower Level, UL = Upper Level, ACME = Average Causal Mediation Effects, ADE = Average Direct Effects, BC = bias-corrected; CIs = Confidence Intervals

Figure 7. Community Violence Witnessing Mediating OA Intensity and Self-Efficacy



## **CHAPTER SIX**

### **DISCUSSION**

The primary goal of this study was to better understand the experiences of OA involvement among adolescents residing in urban settings, including the role of multiple ecological contexts in explaining OA participation and how it impacts developmental outcomes. OAs are a normative experience for many adolescents (Bohnert et al., 2010; Barber, 2001; Mahoney, 2002; Mahoney & Cairns, 1997). In particular, understanding predictors of involvement and mechanisms through which OAs impact development has significant implications for policymakers interested in designing and funding afterschool activities for youth. Despite a substantial body of evidence highlighting the developmental benefits of OA involvement, to date, the research literature remains limited in elucidating what factors are important in understanding whether and to what extent adolescents get involved in OAs, and which features of OAs are most essential in relation to developmental outcomes. This study expands on current knowledge of the role of organized activities among urban adolescents in several important ways.

First, this study employed an ecological perspective, in which multiple contexts of adolescent development were considered as predictors of OA involvement. Although prior work has focused primarily on demographic and individual factors that predict OA involvement, the current study focused on two proximal ecological influences (parent and neighborhood characteristics). Additionally, the current study examined predictors of

*multiple* dimensions of OA involvement (intensity, breadth, and type), at *multiple* points in adolescence. Across waves and OA dimensions, parental supervision emerged as the most significant and consistent predictor of organized activity involvement. Higher parental supervision was associated with higher intensity of OA involvement (Wave 1), greater breadth of OA involvement (Wave 2 and 3), and higher probability of involvement in church, student government, performing arts, and sport activities (Wave 2 and 3), even after controlling for socioeconomic status. In other words, parents who are more involved in how their children spend their time, have children who spend more of their time involved in organized activities, perhaps suggesting that these parents are more likely to promote activity participation. Indeed, prior qualitative work has suggested that parents who attend to what their child does during free time are more likely to promote activity participation by making their children feel they will be supported in their participation efforts (Fletcher et al., 2000; Simpkins et al., 2005).

Similarly, prior work has demonstrated a related link, that low parental supervision is associated with involvement in unstructured activity (Mahoney et al., 2004). This study builds upon this work, and is the first to demonstrate a direct quantitative link between parental supervision and involvement in structured organized activities. This link may operate in a reciprocal fashion in which more highly supervised children feel their participation is supported and are therefore more likely to be involved in activities. Parents high in supervision may also use organized activities as a means of increasing supervision of their children, in that OAs provide a consistent, adult-

supervised, structured space that parents can send their children to and know of their whereabouts during work times. In contrast, parental warmth did not significantly predict any of the dimensions of OA involvement, suggesting that the degree to which parents emphasize concern for and respond to children's needs and desires does not directly relate to whether and to what extent youth get involved in organized activities. This is not to suggest that parental warmth is not important, but that an environment of warmth may not be sufficient to impact OA involvement. It also may be that parental warmth or enthusiasm must be activity-specific to impact involvement, as multiple previous studies have indicated that parental encouragement and support of and within activities is linked with youth's participation in OAs (Anderson et al., 2003; Denault & Poulin, 2000; Huebner & Mancini, 2003; Jacobs et al., 2005; Simpkins et al., 2005). Taken together, in considering the ecological interactions between the parenting and OA contexts, parental involvement and knowledge of how children spend their time seems to be more impactful than parental warmth and responsiveness.

Findings regarding neighborhood effects were less robust, though demonstrated some significant relations. In contrast to expectations, higher neighborhood perceived violence was associated with higher intensity of OA involvement (Wave 1) and higher probability of involvement in church activities (Wave 2 and 3) after controlling for socioeconomic status, suggesting that youth were *more* involved in neighborhoods perceived to be less safe. This contradicts the results of Dearing et al. (2009), which found that living in affluent, safe, and orderly neighborhoods predicted higher OA involvement. However, this study failed to tease apart the effects of SES and

neighborhood safety, which may suggest that after accounting for the well-documented effects of socioeconomic status on OA involvement, lack of safety in neighborhoods may actually contribute to increased activity involvement. As noted previously, neighborhood safety could affect patterns of OA involvement in multiple ways; restriction of OA involvement to decrease contact with an unsafe neighborhood or use of OAs as a safe haven in unsafe neighborhoods. Current results suggest that OAs may serve as structured safe-haven environments for youth during leisure time, as activity involvement was higher in neighborhoods with higher levels of perceived violence. Of note, neighborhood perceived violence was not associated with OA breadth, which would indicate involvement in a variety of activities, and would likely involve greater contact with the neighborhood through travel to and from different activities. Instead, neighborhood perceived violence was linked with the number of hours youth spent in OAs, which included school-based extracurricular activities and community-based afterschool programs. It is possible that youth were spending a substantial amount of time in a single OA setting, again highlighting the possibility of OAs as safe-havens. Prior work has also highlighted the unique role of church activities in urban settings, noting that in disadvantaged neighborhoods, church activities often serve as a low-cost resource for children and families which are embedded within the neighborhood structure (Jarrett, 1999; Stroll, 2001). Findings from the current study were consistent with this, in that in neighborhoods with higher levels of perceived violence, youth were more likely to be involved in church activities.

The important role of neighborhood collective efficacy in communities, particularly among youth, has been well-established (Morenoff et al., 2001; Simons et al., 2005). The results of our study fit with this notion, demonstrating that higher neighborhood collective efficacy was associated with greater breadth of OA involvement (Wave 2 and 3) and higher probability of involvement in church activities (Wave 2 and 3) after controlling for socioeconomic status. Although prior studies have demonstrated a link between neighborhood collective efficacy and adolescents' unstructured time and rates of adolescent delinquency and violence (Elliot et al., 1996; Morenoff et al., 2001; Sampson et al., 1997; Simons et al. 2005), this study is the first to highlight the relation between social connections and monitoring in a neighborhood and youth's participation in organized activities. These findings support theoretical assumptions that community norms create a context of valuing and supporting organized activities, which drives youth participation (Sampson et al., 1999; 2002), and may be a contributing factor to low attendance rates amongst low-income youth with direct access to community-based activity programs (Dynarski et al., 2004). In other words, when OAs are available within a community, the community norms and values for the activities, and degree to which the community is involved in the activities may drive whether or not youth participate. This is particularly pertinent in considering church activities. Sociological work has suggested that in low-income urban neighborhoods, churches serve as invisible institutions of local social control (Johnson, Jang, Li, & Larson, 2000; Spencer, Larson, Li, & Jang, 2006) which are deeply embedded in the culture and values-system of neighborhoods. In other words, church-based activities are likely most closely linked to the neighborhood

environment, and the link between neighborhood collective efficacy and involvement in church OAs falls perfectly in line with this. The link between neighborhood characteristics and involvement in church activities specifically may be an artifact of higher levels of church involvement among African American youth in this study, who are also more likely to experience violence in their neighborhoods. Indeed, scholars have documented that historically the church has been an important agency of social control, support, and organization in African American neighborhoods, with potential for promoting pro-social behavior (Johnson, 2008). Future work should examine the role of ethnic group status in elucidating the link between neighborhood characteristics and church activity involvement.

Taking an ecological approach, the current study also considered that youth's ability to participate in OAs depends on the interaction of individual characteristics, family features, and characteristics of the community. Contrary to expectations, age and sex did not significantly moderate the relation between any of the parent or neighborhood variables and OA involvement at any wave (intensity, breadth, or type). These findings add to the existing literature, which has demonstrated mixed findings regarding sex differences in OA involvement (Eccles & Barber, 1999; Jacobs et al., 2005; Mahoney et al., 2003) and the effect of parenting characteristics (Leff & Hoyle, 1995; Lewko & Ewing, 1980; Simpkins et al., 2005; Spreitzer & Snyder, 1976). Regarding age, an ecological perspective suggests that the effect of various contexts of development (e.g., parents, neighborhoods, peers) shift in prominence and how proximal their effect is across different ages or development periods (Bronfenbrenner, 1979), though these shifts

occur slowly. Even as contextual influences shift throughout development, one context does not replace the other. For example, even though peers become more prominent, and parents become less prominent in effect throughout adolescence, parents do not cease to have effect. Similarly, the degree to which adolescents interact with their neighborhood increases throughout adolescence as they gain more access to neighborhood resources, but neighborhood exerts an effect at all points in the course of a child's development. It may be that these contextual influences do shift mildly in influence, but not substantially enough to change the way in which they impact OA involvement. Taken together, results suggest that after accounting for socioeconomic status, the effects of parent and neighborhood characteristics on OA involvement (intensity, breadth, and type) across adolescence did not vary by sex or age.

Another important contribution of this study is the use of longitudinal data, including three distinct data points, which allowed a causal approach to mediation analysis. This allowed us to evaluate in a theoretically sound manner multiple mechanisms through which OA impacts developmental outcomes in adolescence. More importantly, this study is the first to examine community violence exposure as a mechanism through which OA involvement impacts developmental outcomes in urban youth. Results examining the indirect effect of community violence exposure for organized activity involvement and developmental outcomes, found substantial support for the role of witnessing community violence exposure. Findings indicated significant indirect effects for OA intensity on all five developmental outcomes (i.e., internalizing symptoms, externalizing symptoms, delinquency, substance use, and self-efficacy)

through community violence exposure witnessing. While previous work has been mixed regarding whether organized activity involvement increases risks or protects against violence exposure, the current study suggests that more hours of involvement in organized activities contributed to less community violence witnessing, and subsequently better developmental outcomes. Our study is the first to examine violence exposure as a mechanism through which OA involvement impacts developmental outcomes, and builds on prior work which has found youth organizations protect against violence exposure by deterring violent crime at the neighborhood level (Fauth et al., 2007). Current findings suggest that youth activities may also protect against violence exposure on the individual level, and in turn contribute to better long-term developmental outcomes. Of note, the indirect effect of community violence victimization was not significant, suggesting that OAs impact developmental outcomes more through decreased witnessing than decreased victimization. In the current study, rates of victimization were low, which may have limited the degree to which their effect could be examined. Additionally, research suggests that witnessing community violence exposure is much more common than direct victimization (Lambert, Nylund-Gibson, Copeland-Linder, & Jalongo, 2010), as such involvement in OAs may have more opportunity to act on and reduce rates of witnessing than rates of victimization.

Contrary to expectations, findings indicated that peer characteristics, including positive peer characteristics and peer deviancy, did not mediate the link between OA intensity and developmental outcomes, including internalizing symptoms, externalizing symptoms, delinquency, substance use, and self-efficacy. This is consistent with the

results of Darling et al. (2005), which found no support for peer group characteristics mediating the link between OA involvement and academic outcomes, though contradicts multiple previous studies, which have found support for peer characteristics as a mediator. The research is decidedly mixed, and has varied significantly in the specific dimension of OA, the peer characteristics examined, and developmental outcome being considered. For example, multiple studies have examined peer characteristics which are specific to the outcome being assessed (e.g., peer academic involvement with school belonging as outcome, peer alcohol use with alcohol use as outcome, friend's skipping school with skipping school as outcome; Fredricks & Eccles, 2005; Blomfield & Barber, 2010). In these cases, the connection between the peer influence and the outcome being examined is much more direct than the general peer characteristics and broad developmental outcomes measured in the current study. Additionally, most of the studies examining peer influences (e.g., Blomfield & Barber, 2010; Fredricks & Eccles, 2005; Simpkins et al., 2008) have assessed peer characteristics in the high school period (14-18 years old), during which peers exert a greater influence from an ecological perspective. In the current study, peer characteristics were assessed at Wave 2, during which participants were on average 12.7 years old. It may be that the role of peer characteristics as a mechanism through which OA involvement influence developmental outcomes more strongly in later adolescence, and thus, the current study was not able to capture the point at which peers have an effect.

Results did not corroborate predictions that the indirect effects of community violence exposure and peer characteristics on the link between OA involvement and each

developmental outcome would vary based on sex and socioeconomic status. Although some prior studies have found that peer effects are more significant for females, and the effects of community violence exposure are more significant for males and lower income individuals, the research has been mixed, and primarily has examined the direct links between OA involvement and peer characteristics or community violence (Eccles & Barber, 1999; Fredricks & Eccles, 2006), rather than looking at mediational links. The current study partially supported previous research in that there were sex differences in community violence exposure (e.g., males had higher CVE witnessing and victimization). Additionally, SES was inversely associated with community violence witnessing. However, in considering the whether the complex indirect effect of peers and community violence exposure varied by sex or SES, the results did not support this. Together, our research suggests that perhaps the indirect role of peers and community violence exposure in explaining the link between OA involvement and developmental outcomes is equally significant, or insignificant across socioeconomic groups and sex.

Finally, this study contributed to the existing OA literature by using a diverse, representative urban sample. Much of the existing OA literature has relied on Caucasian, generally middle-class, and suburban samples, which has limited the generalizability of research findings within urban settings. Indeed, an urban environment provides a distinct context to examine OA involvement, as urban environments include more diverse ethnic representation, in addition to unique transportation, economic, and facility constraints. As such, understanding neighborhood characteristics, including safety and collective efficacy, that contribute to or serve as barriers to involvement is especially pertinent.

Additionally, the urban setting may help explain why OA was less strongly linked with developmental outcomes in the current study, in comparison to prior findings. It may be that after considering the multiple complex ecological factors accounted for within the neighborhood, OAs have a less robust effect on developmental outcomes among urban youth in comparison with their suburban and less economically disadvantaged counterparts.

In considering the current findings, the diverse nature of the current sample is notable, as it consists primarily of Latino and African American adolescents, both of which are underrepresented in the OA literature. Latino adolescents, in particular, are underrepresented in their rates of involvement in OA (Darling, 2005; Davalos et al., 1999; Pedersen & Seidman, 2005; Theokas & Bloch, 2006). While previous research has indicated that the lack of availability of OAs in Latino communities is one factor that influences the lower rates of participation (Flores-Gonzalez, 2002; Gardner et al., 2008; Pedersen & Seidman, 2005), the current study suggests that other ecological factors, including parent and neighborhood characteristics, may also contribute to participation rates, even when activities are available. Further exploration of these factors, specifically among Latino youth, will be important, as OA involvement can foster learning and citizenship for Latino adolescents, and be places where Latino adolescents can explore their culture, their history, and expand their knowledge through interactions with adults and peers with whom they can identify (Piha, 2010).

## **Limitations and Future Directions**

This study attempted to address gaps in the current body of literature; however, it is important to consider several limitations when drawing conclusions from this study. Although completing secondary data analysis of a large, representative dataset has the benefits of statistical power and greater generalizability, measurement tools may not capture all the desired information, particularly in regards to organized activity involvement. Although the PHDCN dataset captured multiple dimensions of OA involvement, this was inconsistent across the multiple waves of the study. The first wave of data collection only allows examination of OA intensity, while Wave 2 and 3 only allow examination of OA breadth and OA type. Additionally, parents reported on OA involvement at Wave 1, while youth reported on OA involvement at Wave 2 and 3. As such, there is no consistent measurement of OA involvement across the three waves. The inconsistency with which OA was measured prohibited examination of changes in these factors across the study, and prohibited a more cohesive statistical approach in which all waves of data were examined simultaneously.

In addition to issues of OA measurement inconsistency, there were multiple limitations in the ways in which OA was assessed. First, the ways in which intensity, type, and breadth were measured was adequate, but not as rigorous as is typical in the OA literature. For example, OA intensity was calculated based on parent report of whether their child was currently or previously involved in two types of OAs (extracurricular activities or afterschool programs), and how many hours per week they were involved in each. Precise measures of intensity typically require individuals to list all activities of

involvement, with hours of participation in each (Bohnert et al., 2010). In reducing activities into two large activities, the probability of reporting errors increases and participants likely forgot some activities and underestimated hours of participation. Additionally, a recall period for report of OA intensity was not specified. As such, for some youth, our measure of OA intensity may reflect participation that occurred significantly prior to Wave 1. Finally, report of OA type did not include academic clubs (e.g., math club, debate team), which is commonly included in examinations of OA type and breadth. (Bohnert, et al., 2010). Overall our measures of OA were less precise and specific indicators of the underlying organized activity constructs than is recommended in OA research (Bohnert et al., 2010). This may have contributed to some of the null findings. Additionally, our claims about the influence of contextual factors on OA involvement and the influence of OA participation on developmental outcomes may have been stronger with more detailed measures of participation.

Although our measures of participation in organized activities captured the intensity, breadth, and type of youths' participation, they did not capture two other potentially important dimensions of the amount of time that youth devote to organized activities—duration and continuity. The data needed to measure duration (i.e., the length of time in activities) and continuity (i.e., consistency of involvement in a specific activity) were not available. However, greater participation duration and continuity have been linked to more positive youth outcomes (Bohnert et al., 2010), and certainly understanding predictors of what keeps youth involved in activities across time is important. Thus, consideration of predictors of these dimensions and the effect of these

dimensions on longitudinal developmental outcomes should be examined in future studies using a similarly representative urban sample.

An additional limitation of this study is its inability to draw definitive conclusions about causality. While the longitudinal nature of the data, and consideration of both youth- and community-level variables contributed to stronger support for our findings, it is never possible to completely eliminate selection bias in non-experimental research. That is, statistical methods cannot completely correct for the possibility that youth with better mental health and behavioral characteristics in childhood may be more likely to be involved in activities, or that youth involvement in activities may elicit greater parental supervision or draw youth to better neighborhoods. Additionally, mediation analyses did not control for prior levels of mediators or outcome variables. As such, while the data was longitudinal in nature, the results do not necessarily capture changes in the outcomes over the course of development.

Last, while data was drawn from a large and representative sample of urban youth in Chicago, our results may not be generalizable to populations not represented in this study. Our sample was, on average, somewhat economically disadvantaged. Research suggests that socioeconomic status and participation in organized activities is inversely related (Wimer et al., 2006). As such, it is unclear whether findings would generalize to more economically advantaged youth, or youth from rural or international settings where the availability of activities and value placed on activity involvement may vary significantly.

Despite these limitations, this study is an important step in understanding organized activity involvement among urban adolescents. The findings from this study advance our understanding of the multifaceted, context-dependent nature of organized activity involvement, and calls attention to the many contexts that shape and are shaped by adolescent OA involvement. In particular, it draws attention to the essential role of parent and neighborhood characteristics in understanding adolescent's involvement, or lack of involvement, in OAs. Similarly, this study highlights the role of reductions in witnessing violence exposure in linking OA and multiple developmental outcomes. Together, our findings extend a continually growing body of work highlighting OAs as a context for healthy development that mutually interact with other ecological contexts of adolescent development.

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## VITA

Nicole Arola Anderson received her doctoral degree at Loyola University Chicago studying clinical psychology with a specialty in child, adolescent, and family issues. She received her B.A. in Psychology from the University of St. Thomas in 2010, and her M.A. in Clinical Psychology from Loyola University Chicago in 2012. At Loyola, Dr. Anderson has been a member of Dr. Amy Bohnert's Activity Matters Lab. As part of this lab, she has worked on multiple projects highlighting her varying interests. These include projects examining the link between involvement in organized activities and adjustment outcomes amongst various populations, including urban youth, adolescents, emerging adults, high functioning youth with autism, and affluent youth. Her masters thesis examined the relation between multiple indices of organized activity involvement and adjustment amongst emerging adults transitioning to college, and her dissertation examined predictors and mechanisms of organized activity involvement among urban youth. Work on these varying projects has resulted in numerous presentations at national and international conferences, in addition to several publications.

