THE ROLE OF ECOLOGICAL CONTEXT AND ACTIVITY INVOLVEMENT IN YOUTH DEVELOPMENTAL OUTCOMES: DIFFERENTIAL IMPACTS OF ASSET POOR AND ASSET RICH NEIGHBORHOODS

A Dissertation

Presented to the Faculty of the Graduate School

of Cornell University

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

by

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August 2008

THE ROLE OF ECOLOGICAL CONTEXT AND ACTIVITY INVOLVEMENT IN YOUTH DEVELOPMENTAL OUTCOMES: DIFFERENTIAL IMPACTS OF ASSET POOR AND ASSET RICH NEIGHBORHOODS

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Cornell University 2008

Developmental systems theories, and particularly Bronfenbrenner's Bioecological model, recognize that many factors contribute to adolescent development including individual talents, resources and preferences, family factors, school factors, and the neighborhood environment. Extracurricular activities provide yet another context for youth development and participation in such activities has been linked with positive developmental outcomes.

This study uses data from a subsample of early adolescents in the 4-H Study of Positive Youth Development to determine whether neighborhood assets (resources available in the neighborhood) moderate the effect of adolescent activity involvement on positive and negative developmental outcomes. The results revealed a complex interplay between individual level factors, including self-regulation and activity involvement, and neighborhood assets. Activity involvement differentially affected youth outcomes depending upon the ecological context in which they are embedded. For example, activity involvement had the greatest influence on youth living in neighborhoods with limited physical resources. Additionally, boys and girls were affected differently by both the amount of time spent in activities and the types of neighborhood supports available. Consistent with Bioecological theory, results from the

current study indicate that youth living in lower asset neighborhoods benefit more than their counterparts living in high asset neighborhoods from participation in activities when looking at outcomes of dysfunction. The effect of activity involvement on outcomes of competence is less clear. However, the neighborhood context does matter and is an environment that is amenable to change.

BIOGRAPHICAL SKETCH

Jennifer was born and raised in Montclair, New Jersey. She attended the Montclair Public Schools performing arts magnet from kindergarten through 8th grade and was a student at Nishuane Elementary School, Hillside Elementary School, and Glenfield Middle School. Jennifer went to the Montclair Kimberley Academy and received her high school diploma in 1997. She then attended Tufts University where she studied Psychology and Child Development. In 2000, she was inducted into Phi Beta Kappa and in 2001 she graduated Summa Cum Laude with a Bachelor of Arts in Psychology and Child Development. While a student at Tufts University, Jennifer received several honors and awards including the Priscilla N. Dunne Prize for promise of future achievement in the field of psychology, The Class of 1942 Award Scholarship for those most likely to become outstanding university teachers, counselors or administrators, The Tufts University Alumni Association Senior Award for academic excellence and outstanding leadership, and the Leonard Carmichael Prize Scholarship for outstanding academic achievement.

Jennifer spent two years away from academe during which time she lived in Florence, Italy where she taught English to 3-5 year-old children. Upon her return to the United States, Jennifer moved back to Boston where she worked as a consultant for JSI Research and Training, Inc., a public health research and consulting firm. In 2003, Jennifer moved to Ithaca, New York to begin the MA/PhD program in the Department of Human Development at Cornell University. Jennifer received her Master of Arts degree from Cornell University in 2006 after successfully completing her master's thesis titled "A Collaborative Approach to Understanding the Components of Successful Youth Development Programs".

Upon completion of her doctorate, Jennifer will be a Society for Research in Child Development Executive Branch Policy Fellow. She will be spending her fellowship year at NIH, Office of Behavioral and Social Sciences Research. Beginning in September 2009, Jennifer has an appointment as an Assistant Professor in the Department of Family and Child Studies at Montclair State University. Thus, her educational journey comes full circle.

In addition to her studies, Jennifer has also danced her entire life and most recently taught Latin dancing to students, faculty, and staff at Cornell as well as to members of the Ithaca community. Dancing was what kept Jennifer sane during her years as a graduate student and her success at Cornell would not have been possible without the always pleasant company of her dance students.

This dissertation is dedicated to my loving parents who have supported and nurtured my own development, to my brother Andrew whose life inspires my study of developmental psychology, and to Jeremy whose steadfast love, support, and encouragement have enabled me to achieve my goals.

ACKNOWLEDGMENTS

This dissertation would not have been possible without the support of many colleagues, friends, and family. First, I thank my committee chair Steve Hamilton, for being by my side from day one and guiding me throughout my graduate education. I am especially grateful for his trust in my abilities as a scholar and for preparing me to be an independent thinker.

Thank you also to my minor committee members: Bill Trochim, Richard Lerner, and Ray Swisher. A special thank you to Ray for all of his help and guidance with the statistical analysis planning and for sharing his neighborhood expertise and sociological perspective.

An enormous thank you to Rich for moving to Tufts when I was an undergraduate, for welcoming me into his lab and giving me opportunities that an undergraduate could only dream of, for introducing me to the PYD perspective and developmental systems theories, for encouraging me to get my Ph.D. at Cornell, for giving me access to the 4-H Study of Positive Youth Development dataset, for promising me that the end was in sight and showing me how to get there when I thought I would never reach this day, for serving as an ad hoc committee member, and for teaching me through his actions how to be a great mentor.

A paragraph in the acknowledgements section of a dissertation is hardly an appropriate enough way to express my sincere gratitude and admiration of Bill Trochim. I do not think that Bill knew what he was in for when he met me after guest lecturing for the PAM course “Critical Perspectives” during my first year at Cornell. Bill has not only been on my committee from the very beginning, but has also served as my research advisor, mentor,

colleague, confidante, and friend. I truly would not be where I am now were it not for the knowledge and wisdom he shared, the opportunities that he granted, the guidance that he gave, the advice, encouragement, support and goodwill that he offered, and the trust, friendship, understanding, and warmth that he provided at all times. A heartfelt thank you also goes to his wife, Mary Kane, who together with Bill, served as my surrogate Ithaca parents for the past five years. Thank you for opening your home, your hearts, and your friendship to me. Without you I would not have made it this far.

A special thank you also goes out to the Cornell Office for Research on Evaluation (CORE) and especially, Sarah Hertzog, Claire Hebbard, Monica Hargraves, and all of the undergraduate RA's: Haixin Dang, Stacey Eilbaum, Angela Hsu, Timothy Au, Anthony Zhu, and Rantimi Oluwasegun. You are all spectacular and thanks to you I was able to simultaneously work for CORE and complete my dissertation. An extra special thank you to Sarah who shared an office the size of a closet with me. Thank you for letting me have the desk next to the window, for listening to me when I needed to talk about wedding planning, for being my cheerleader when I was on the job market, and for being such an amazing friend.

This dissertation would not have been possible without the help and support of current and former members of the Institute for Applied Research in Youth Development at Tufts University and especially Jackie Lerner, Erin Phelps, Christina Theokas, Nicole Zarrett, Yibing Li, and Jennifer Davison. A very special thank you to Erin for all of her help with the statistical analyses.

There are also many members of the Cornell community that provided much needed support throughout my graduate career. I am indebted to Francoise Vermeylen and the Statistical Consulting Unit for all of their help,

from beginning to end, on this project. Thank you also to Professor Tom DiCiccio for lending his statistical expertise to this project. I would also like to thank Barbara Koslowski for her guidance and for taking the time to listen. Thank you also to Chrissie Schelhas-Miller and Henry Ricciutti for their interest in and support of my work. My gratitude also goes to the Human Development office staff and especially Marianne Arcangeli, Bonnie Biata, Crystal Clark, Juleene Connor, Peter Farley, and Debra Smith. I would also like to thank the HD girls for making the last five years in Ithaca so much fun. Special thanks to Daphna Ram, Heather Gilmore, Sarah Kulkofsky, Jui Bhagwat, Zoe Klemfuss, Taryn Morrissey, Pilyoung Kim, Nicole Ja, Kaybee Wilbourn, and to my forever peer mentor Catherine Bradshaw.

Thank you also to the Ithaca Salsa community for helping me to keep my sanity and for allowing me to share my love of dance. Thank you to my dance partner Jean-Pierre Laurenceau-Medina and all of my students for making me laugh, keeping me on my toes, and reminding me that dance always equals happiness. Thank you especially to Natasha Keller and Gruschenka Mojica for assisting J-P after I had to “resign” from teaching in Ithaca and for carrying on the MAS Dance torch. Thank you also to Kathy and Richard Sholtys, two of my favorite students, for giving me the opportunity to keep a foot in the door of the salsa world and for being so flexible while I was working on writing this dissertation.

This has been a busy year and I could not have possibly made it through without the love and support from three of my favorite girls, Lizzie, Tina, and Alex. Thank you to Alex for being there since before we could walk (and it is about time that you forgave me for allegedly pushing you down when you were holding onto the stroller and for allegedly feeding you bologna in

nursery school. Seriously, how many toddlers are vegetarians?). Thank you to Tina for being one of the most amazing, most awesome, most incredible women I know. I never would have thought that I would find a friendship like ours so late in my life. You are like my long lost sister and I thank you for your generosity of spirit and your enduring positive outlook that is truly inspirational. Thank you also to my Lizzie, my best friend, my memory, my maid of honor, and my rock. Thank you for supporting and encouraging me to achieve my goals, for bed chats, for remembering the important things, and for being the best friend anyone could ever ask for.

I am deeply grateful for the love and support of my family all of whom have contributed to my drive, my dedication, and my success. Thank you to Gayle and Russ Urban for being so understanding when I had to work during holiday visits. Thanks to all of the nieces and nephews, Tucker, Phoebe, Connor, Caleb, and Baby Angie for melting my heart and putting a smile on my face. Thank you to their parents, Chris, Susan, Sean, and Betty for letting me play with them. Thank you to my parents for their unconditional love, for encouraging me to do my best, for supporting my education, and for giving me a baby brother who inspired it all. Thank you to that little boy who now stands over six feet tall for being the best brother that any sister could ever have. Thank you Andrew for being you; you really are amazing.

Last but not least, thank you Jeremy, the love of my life, man of my dreams. Thank you for going to that barbecue, for grinning and bearing it even when I took you salsa dancing, for being there in spirit during all of my defenses and celebrations, for supporting me 100% in all of my goals and aspirations, for loving me and making me a part of your life, for asking me to be your wife, and most of all just for being you.

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CHAPTER 1

INTRODUCTION

Many factors contribute to adolescent development including individual talents, resources, and preferences, family factors, school factors, and neighborhood/community factors. This deliberate recognition of the multiple contexts that influence youth development can be attributed to developmental systems theories (e.g., Bronfenbrenner's Bioecological Theory). The positive youth development perspective emerged in the 1990s (Hamilton, Hamilton, & Pittman, 2004) and is rooted in developmental systems theories that stress the relationship between the developing individual and his environment as well as the plasticity (or capacity for change) inherent in human development (Lerner et al., 2005). Positive development is optimal when there is a good fit between the individual and the ecological context in which he or she is embedded. Extracurricular activities provide one type of context that can potentially enhance development and the positive youth development field has focused a great deal of research and evaluation on this particular context (Eccles & Gootman, 2002).

Regardless of the specific location (i.e., at school, in the community, etc.), programs that promote positive youth development provide youth with (a) physical and psychological safety, (b) appropriate structure, (c) supportive relationships, (d) opportunities to belong, (e) positive social norms, (f) support for efficacy and mattering, (g) opportunity for skill building, and (h) integration of family, school and community efforts (Eccles & Gootman, 2002). Alternatively, time spent in unsupervised activities has been linked with

antisocial behavior (Persson, Kerr, & Stattin, 2007). Positive youth development activities range in scope from single-focus programs like sports teams to national organizations like 4-H. Participation in positive activities has been linked with positive developmental outcomes such as college attendance, volunteering, voting (Zaff, Moore, Papillo, & Williams, 2003), academic performance, decreased risk taking (Eccles & Barber, 1999), psychological resilience, self-worth, and school belonging (Fredricks & Eccles, 2006). Although sports involvement has features that promote positive development, several studies have consistently found a negative relationship between sports involvement and both stress (Larson, Hansen, & Moneta, 2006) and substance use (Eccles & Barber, 1999; Fauth, Roth, & Brooks-Gunn, 2007). In addition, media attention, and more recently research, has focused on the possible negative effects of over-scheduling youth (Elkind, 2001; Mahoney, Harris, & Eccles, 2006). It seems as though the relationship between adolescent activity involvement and developmental outcomes is not as simple and straightforward as initially believed.

One possible explanation for these seemingly contradictory findings could be derived from developmental systems theories. Perhaps other contexts that affect youth development such as individual, family, school, and neighborhood factors may interact with and moderate the effects of activity involvement on youth outcomes. The neighborhood context is particularly challenging to study since the more proximal environment (such as the family) tends to exert the most influence on individual development. In addition, neighborhood variables are difficult to measure. However, the neighborhood context also provides the greatest potential for change. Altering the resources available in a neighborhood can be done via policy routes that stand to impact

large numbers of youth. Therefore, the neighborhood context is the focus of study in this dissertation.

Current Study

This dissertation used data from a subsample of participants in the 4-H Study of Positive Youth Development (Lerner et al., 2005). The purpose of this research was to determine whether neighborhood characteristics moderate the effect of adolescent activity involvement on both positive and negative developmental outcomes. The hypothesis guiding this work was that youth participation in activities would have the greatest impact on youth living in lower asset neighborhoods, but within these lower asset neighborhoods, youth with the most favorable person-level characteristics would have the most favorable developmental outcomes.

This dissertation aims to address the impact that the neighborhood as an ecological context has on youth development, as well as, add to the literature on adolescent activity involvement and developmental outcomes. Chapter Two provides a literature review that includes a discussion of positive youth development, neighborhoods as ecological assets, activities as a context for development, Bioecological Theory, and self-regulation as a person-level characteristic. The methods of this study are described in detail in Chapter Three. Chapter Four presents the results of the analyses conducted. A discussion of the results is provided in Chapter Five.

CHAPTER 2

LITERATURE REVIEW

How adolescents spend their time out-of-school has received increasing attention (Mahoney, Larson, & Eccles, 2005; Mahoney, Larson, Eccles, & Lord, 2005). Initially, the hours after school were viewed as potentially dangerous as they provided opportunities for unsupervised youth to engage in risky and even violent behavior. However, research has shown that by engaging youth in out-of-school activities with caring adults in safe environments, not only can youth risk taking and violence be decreased, but positive youth development can also be enhanced (Zaff, Moore, Papillo, & Williams, 2003).

Positive Youth Development

The term positive youth development (PYD) began to be used in reference to a set of principles in the 1990s (Hamilton, Hamilton, & Pittman, 2004). The PYD perspective emerged in response to an interest among developmental scientists to apply dynamic, developmental systems models to the study of human development (Lerner, 2005). The PYD approach recognizes that preventing problems alone is not enough and does not automatically ensure that youth will develop positively. Positive youth development emphasizes the potential present in all youth and recognizes that all youth have the potential for healthy, successful, and positive development (Lerner, Jelicic, Smith, & Alberts, 2006). The goals of PYD can be summarized with the 5 Cs which include competence, character, confidence, connection,

and compassion. When a youth manifests all 5 Cs he/she is said to be thriving (Lerner, et al., 2006).

Positive development occurs when there is a match between the naturally developing person and their capacities with a supportive ecology or context (Benson, Scales, Hamilton, & Sesma, 2006). Youth interact with several contexts including family, school, and neighborhood. PYD takes a holistic approach to development, whereby the whole community is viewed in relation to the whole child and interactions between contexts are key (Damon, 2004). The neighborhood context is not only a place where development occurs, but also a place where youth can actively participate in meaningful ways that foster youth empowerment and actively involve youth in processes that affect their development (Benson, Scales, Hamilton, & Sesma, 2006).

Many researchers and practitioners have adopted an "asset-based" framework and terminology in order to describe the characteristics or nutrients needed for successful development. Researchers at the Search Institute have proposed an asset framework that includes 40 internal and external assets that are the building blocks of positive development (Benson, 1997). The 20 external assets are categorized into four areas including support, empowerment, boundaries and expectations, and constructive use of time. The remaining 20 internal assets are categorized as commitment to learning, positive values, social competencies, and positive identity (Benson, 1997). More recently, Theokas, et al. (2005) have found empirical support for reducing these 40 developmental assets to 14 asset scales that can be grouped into two broad categories of individual and ecological assets. Both the 40 asset model and the 14 asset model have found support for the "pile-up" hypothesis which posits that the addition of assets has a cumulative effect

whereby more assets result in more favorable outcomes (Benson, Scales, Leffert, & Roehlkepartain, 1999; Theokas et al., 2005). This hypothesis generally assumes that the specific types or combinations of assets are not as important as the sheer number of assets. However, there is evidence that the specific assets or cluster of assets may matter depending upon the specific outcome(s) of interest (Benson, Scales, Hamilton, & Sesma, 2006).

Neighborhoods as an Ecological Asset

In addition to individual and family level risk and protective factors, the neighborhood in which a youth is embedded may also contribute to developmental outcomes. However, neighborhood effects are typically indirect and operate through more proximal processes that occur at the individual, family, and community levels (Leventhal & Brooks-Gunn, 2000; Leventhal, Dupere, & Brooks-Gunn, In press). For example, particularly for younger adolescents, access to neighborhood resources may be brokered by parents (Leventhal & Brooks-Gunn, 2000). One of the six principles of youth development proposed by Benson and colleagues (Benson, Scales, Hamilton, & Sesma, 2006), is that although all youth stand to benefit from supportive relationships, contexts, and ecologies, the strategies for promoting these assets may differ as a function of the individual's social location. One of the initial challenges of conducting neighborhood research is accurately defining the boundaries of the neighborhood. The most common approach is to use the census tract as the defining boundaries of neighborhoods since this allows for the use of data compiled as part of the U.S. Decennial census and because census tracts typically conform to residents' reports of neighborhood boundaries (Leventhal, Dupere, & Brooks-Gunn, In press).

Swisher and Whitlock (2004) presented a model of how neighborhoods influence youth development. Neighborhood demographics such as population stability, income, and human capital are believed to roughly define the boundaries of risks and opportunities available to youth. The neighborhood demographics influence neighborhood social capital including informal social controls, institutions, and bonding ties. The neighborhood social capital then influences neighborhood quality including safety, positive expectations, and collective efficacy. All of these impact positive youth outcomes. Therefore, neighborhoods will vary in the quality and quantity of the supports they are able to provide to their youth.

The institutional resources model posits an alternative, though not necessarily competing framework for how neighborhoods influence youth developmental outcomes. The institutional resources model posits that the quality, diversity, and quantity of neighborhood resources such as recreational and social programs (parks, sports programs, and community centers), social services, and schools mediate neighborhood effects on youth well-being (Leventhal & Brooks-Gunn, 2000; Leventhal, Dupere, & Brooks-Gunn, In press). Generally, utilization of these institutional resources is expected to be beneficial particularly for youth living in disadvantaged neighborhoods. However, involvement in extracurricular activities could potentially have negative effects on youth living in disadvantaged neighborhoods marked by high levels of violence, as participation could increase their exposure to neighborhood violence (Fauth, Roth, & Brooks-Gunn, 2007; Sampson, Raudenbush, & Earls, 1997).

The norms/collective efficacy model and the relationships and ties model also propose mechanisms by which neighborhood factors can affect

youth outcomes. The norms/collective efficacy model posits that neighborhood effects can be accounted for by the extent to which community institutions exist to regulate the behavior of youth (Leventhal & Brooks-Gunn, 2000; Leventhal, Dupere, & Brooks-Gunn, In press). For example, adolescent behavior may be mediated by informal social control in the neighborhood. The relationships and ties model posits that neighborhood influences are transmitted via parental characteristics such as mental and physical health, social support networks available to parents, and the quality of the home environment (Leventhal & Brooks-Gunn, 2000; Leventhal, Dupere, & Brooks-Gunn, In press).

In their study of 3,335 seventh, eighth, and ninth graders from the United States and China, Costa and colleagues (2005) demonstrated the risk and protective factors that a variety of social contexts, including neighborhoods, can provide. The Adolescent Health and Development Questionnaire (AHDQ) was used to assess a range of prosocial and problem behaviors as well as risk and protective factors in the family, peer, school, and neighborhood contexts. The results indicated that each of the contexts made a unique and significant contribution to explaining adolescents' involvement in problem behaviors beyond that explained by demographic variables and individual level risk and protective factors. They also found evidence suggesting that protective factors found in social contexts attenuate the impact of individual risk factors lending support to interventions that focus on improving the contexts in which youth are embedded. In addition, protective factors in each of the social contexts moderated risk in other contexts, thereby attenuating the impact of adolescent involvement in problem behaviors. Finally, they found that when risk is high, protective factors are most

beneficial, and that when risk is low, protective factors are less important (Costa et al., 2005).

Defining and Explaining the Role of Ecological Assets

Using data from the 4-H Study of Positive Youth Development (Lerner, et al., 2005), Theokas and Lerner (2006) specified four categories of observed ecological assets that organize the resources and opportunities available to youth in the context of the family, school, and neighborhood. Within each context, they documented four dimensions of assets including: human, physical or institutional, collective activity, and accessibility. Human resources include the strengths, skills, talents, and abilities of people. Physical and institutional resources in the social environment document opportunities for recreation, learning, and engaging with the physical and social world. Collective activity documents the relationships and connections among institutions, school personnel, parents, youth, and community members. Accessibility documents the ability of people to utilize human resources and resource opportunities in a given context. To measure the relationship between these ecological assets and outcomes, composite scores for each of these ecological assets were summed for each setting (family, school, and neighborhood) and examined in relation to positive (PYD and contribution) and negative (depression and risk taking) developmental outcomes.

A youth development framework posits that aligning ecological resources with developmental needs will lead to both a decrease in negative, risky behaviors and an increase in positive, thriving behaviors (Theokas & Lerner, 2006). Findings from Theokas and Lerner (2006) provide partial support for this relationship. Each of the ecological asset dimensions predicted developmental outcomes in at least one context (family, school, neighborhood)

with collective activity in the family, accessibility in school, and human resources in the neighborhood providing the most comprehensive impact on the developmental outcomes. The family context accounted for the largest amount of variance for PYD and depression, while the school context accounted for the largest amount of variance for contribution. None of the contexts added significant amounts of variance to the prediction of risk behaviors. Contrary to expectations, the more proximal contexts did not always account for larger amounts of the variance in outcomes; however, neighborhood composite scores consistently accounted for the smallest amount of the variance.

Although the results of this study indicated that the neighborhood setting had a minimal impact, it is important to recognize that the youth studied were only in the fifth grade. Ecological assets available in the neighborhood may become increasingly important as youth mature and spend less time with their families and more time in the neighborhood (Bronfenbrenner & Morris, 1998, 2006; Leventhal, Dupere, & Brooks-Gunn, In press). For example, most youth reported positive feelings about themselves and few reported engaging in negative behaviors. As the youth mature and encounter new challenges and opportunities, risk taking behaviors are likely to increase (e.g., Moffitt, 1993). Therefore, though ecological assets did not account for a significant portion of the variance in the prediction of risk behaviors in the Theokas and Lerner (2006) study, they may prove more predictive in future waves of the 4-H Study of Positive Youth Development.

Extracurricular Activities as a Context for Development

Extracurricular activities, and particularly youth development programs, are a form of community-based interventions that augment youths' exposure

to ecological assets. Youth development programs strive to promote positive youth development while also preventing problem behavior (Roth & Brooks-Gunn, 2003). Programs that incorporate at least some of the principles of youth development range in scope from single-focus programs like sports teams to national, multi-focus organizations like 4-H. The common theme in all youth development programs is that they provide the context for challenging experiences, safe places, and an opportunity to interact with caring adults (Roth & Brooks-Gunn, 2003).

Several studies have already explored how adolescents spend their out-of-school time and the impact participation in extracurricular activities has on both risk taking and positive development. In order to examine average trajectories of activity participation among urban youth, Pedersen (2005) utilized a longitudinal dataset drawn from the Adolescent Pathways Project (APP). Wave one sampled a younger cohort (youth completing the last year of elementary school) and an older cohort (youth completing the last year of the middle grades). The younger cohort was followed up at three additional time points, while the older cohort was followed up at two additional time points. Extracurricular activity participation was examined in three contexts: school, religious institutions, and sports teams. In general, involvement in school-based activities and sports declined over time, while participation in religious activities increased over time. The authors also looked at whether activity participation varied as a function of demographic characteristics including gender, race/ethnicity, religion, and socioeconomic status (SES). Race and ethnicity tended not to be related to activity participation profiles, while lower SES (defined as parental underemployment) was associated with lower participation in activities in general and a decrease in activity involvement over

time. However, breadth as opposed to intensity of activity participation was the focus of study which means that the general decline in activity participation over time may be attributed to an increase in specialization in activities over time as opposed to simply a decline in activity participation (Fredricks & Eccles, 2006; Pedersen, 2005).

Several studies have specifically examined the relationship between activity participation and positive youth outcomes. Data from the National Longitudinal Education Study of 1988 (NLES:88) were used to examine the relationship between activity participation (aggregated across activity type) over the high school years and positive outcomes including voting, volunteering, and college attendance while controlling for parental involvement and monitoring, the influence of peers, the school environment, gender, ethnicity, family structure and size, SES, and the presence of a disability (Zaff, Moore, Papillo, & Williams, 2003). The final sample included 8,599 students who remained in school across all three waves of data collection. Students who consistently participated in extracurricular activities were more likely to vote, attend college, and volunteer than students who only occasionally participated in extracurricular activities when taking control variables into account (Zaff, Moore, Papillo, & Williams, 2003).

Other studies have explored the ways in which different types of activities impact youth development (Dworkin, Larson, & Hansen, 2003; Hansen, Larson, & Dworkin, 2003; Larson, Hansen, & Moneta, 2006). Larson, Hansen, and Moneta (2006) categorized organized activities into six types including sports, performance/fine arts (e.g. music, dance, drama, arts clubs), academic clubs/organizations (e.g. science club), community-oriented activities (e.g. YMCA, Boy/Girl Scouts, 4-H, Future Farmers of America),

service activities, and faith-based youth groups. A total of 2,280 eleventh grade students from 19 high schools were surveyed regarding their participation in organized activities and experiences related to six domains of positive development: identity work, initiative, emotional regulation, teamwork/social skills, positive relationships, and development of adult networks/social capital; and five domains of negative processes: stress, inappropriate adult behavior, negative peer influence, social exclusion, and negative peer dynamics. The primary objectives of this research were to determine and compare the rates of developmental experiences in a variety of organized activities and compare experiences in these activities with three other major areas of youth's lives: time spent in classes, hanging out with friends, and working at a job.

The results indicated that the activity types differed from one another on all of the positive developmental domains. Compared to other organized activities, students in sports reported higher levels of initiative, emotional regulation, and teamwork and lower rates of identity work, positive relationships, and adult network experiences. Compared to other organized activities, students in performance and fine arts reported higher rates of initiative and lower rates of teamwork, positive relationships, and adult network experiences. Students in academic clubs and organizations reported lower scores on all six domains of positive development compared to other organized activities. Students in community-oriented activities reported higher scores on adult network experiences and lower scores on emotion regulation and teamwork compared to other organized activities. Students in service activities reported lower scores on emotion regulation experiences and higher scores on teamwork, positive relationships, and adult network experiences

compared to other organized activities. Finally, youth in faith-based youth groups reported the highest rates of positive developmental experiences in all six domains compared to other organized activities. Fewer differences between activities were found for the five scales of negative experiences. In general, rates of stress were highest for youth in sports and lowest for youth in academic, faith-based, and service activities (Larson, Hansen, & Moneta, 2006).

Eccles and Barber (1999) found a similar pattern of results in their study of the relationship between activity involvement and psychological and behavioral outcomes. Data were drawn from the sixth and seventh waves of the Michigan Study of Adolescent Life Transitions (MSALT) and the subsample included 1,259 youth who were in the 12th grade when the sixth wave of data was collected. Similar to the study conducted by Larson, Hansen, and Moneta (2006), Eccles and Barber (1999) found that youth involved in prosocial activities (including faith-based activities) reported less involvement in problem behaviors, better academic performance, and greater likelihood of future enrollment in college. Interestingly, they also found that involvement in sports was related to negative outcomes such as an increase in alcohol use. However, sports involvement also served a protective function for academic outcomes. In addition, involvement in the performing arts at grade 10 was associated with less risk taking in grades 10 and 12 as well as several positive academic outcomes including greater liking of school in grades 10 and 12, higher 12th grade GPA, and greater likelihood of attending college in the future. Involvement in school related clubs and activities was not consistently related to engagement in risky behaviors but it was related to higher 12th grade GPA and expected likelihood of future college attendance. In general, activity

involvement was related to positive outcomes (Eccles & Barber, 1999). The pattern of findings described above is similar to previous findings (e.g. Larson, Hansen, & Moneta, 2006). In particular, both studies found that youth who engage in faith-based or prosocial activities tend to have the most consistently positive outcomes and the lowest rates of risk taking behavior.

Although these studies provided information regarding the relationship between activity involvement and positive youth development outcomes, they failed to consider differences in impact based on subtle differences in the quantity of involvement defined as activity duration, number of activities, and breadth of activity participation. Fredricks and Eccles (2006) explored these relationships in their analyses of the longitudinal Childhood and Beyond Study (CAB) which began in 1987. The children in their sample tended to be White and from middle-class intact families, therefore caution should be taken in generalizing their findings to other populations. Outcome measures included risk behaviors, academic adjustment (e.g. self-reported grades and school belonging), characteristics of the peer group, and psychological adjustment (e.g. self-worth, resilience, distress). Duration of activity involvement (over three waves of data) positively predicted grades, psychological resilience, academically oriented peers, and was a negative predictor of having risk taking peers. They also found for the younger cohort of youth (eighth and ninth grade) duration of participation was associated with higher school belonging and self-worth. Similar to findings by Larson, Hansen, and Moneta (2006), Fredricks and Eccles (2006) found few associations between duration of participation in organized sports and positive adjustment.

Fredricks and Eccles (2006) also examined the impact of number of activities at grade eight and grade eleven and indicators of PYD one year later

at grade nine and grade twelve. For the older cohort of youth (11th and 12th grade), higher numbers of activities were positively associated with school belonging, psychological resilience, academic peers, and negatively related to psychological distress and risky peers. For the younger cohort of youth (eighth and ninth grade), total number of activities was positively associated with having risky peers one year later. In general, they found a linear relationship between the number of activities and PYD outcomes with one exception. For the oldest cohort of youth, the lowest and highest levels of participation were associated with higher levels of risky behavior (Fredricks & Eccles, 2006).

Fredricks and Eccles (2006) also used two indicators of activity breadth at Wave six to predict indicators of PYD one year later. For the oldest cohort of youth, breadth of activity involvement positively predicted school belonging, grades, psychological resilience, and having academic peers and predicted lower levels of distress and having risky peers. Breadth of activity involvement did not prove to be a very important factor for the younger cohort as it only positively predicted having academic peers. In general, increased participation in activities was associated with increased PYD outcomes. However, there were few associations between activity involvement and reduction in risk behavior; though, their sample did not include high risk youth for which involvement in activities may have a greater influence (Fredricks & Eccles, 2006).

One of the most interesting findings from the Fredricks and Eccles (2006) study was data that supported the threshold model (also known as the over-scheduling hypothesis) which states that moderate amounts of activity participation have beneficial effects; however, beyond some optimal level of involvement there are diminishing returns. Marsh and Kleitman (Marsh, 1992;

Marsh & Kleitman, 2002) first found this pattern in their study that used longitudinal data from 12,084 respondents in the NLES:88 database. In general, when controlling for background variables and preexisting outcomes, higher involvement in extracurricular activities was associated with positive 12th grade and postsecondary outcomes. However, for extremely high levels of activity participation, the outcomes were slightly negative indicating that extremely high levels of participation may result in a point of diminishing returns (Marsh & Kleitman, 2002). A recent meta-analysis indicated that there is limited support for this "over-scheduling" hypothesis and that for the majority of youth, activity participation is beneficial (Mahoney, Harris, & Eccles, 2006).

The Impact of Extracurricular Activities: Gap Widening versus Gap Closing

Another important question that needs to be addressed is whether activity involvement, and particularly involvement in youth development activities, differentially impacts youth. Do all youth stand to benefit equally from participating in extracurricular activities? Does participation in extracurricular activities serve as a protective factor for at-risk youth? The role of risk and protective factors is an important topic in youth development as there continues to be debate around the question of whether youth development programs should target youth deemed to be "at risk" or be more universal and open to all youth (Benson, Scales, Hamilton, & Sesma, 2006). Some researchers take the position that by definition youth development programs focus on all youth and are therefore universal programs (Roth, Brooks-Gunn, Murray, & Foster, 1998). Others argue that youth development programs can be targeted for "at risk" youth (e.g. Hamilton, Hamilton, & Pittman, 2004) and may even be particularly appropriate as a form of

treatment or remediation for youth in the juvenile justice system (Bradshaw, Brown, & Hamilton, 2006).

The question of whether or not youth development programs should be universal or targeted is a highly relevant topic that has important policy ramifications. The goal of many targeted interventions is to raise the performance of the disadvantaged (or at risk) group to the level of the more advantaged group. Ceci and Papierno (2005) argue that when some of these targeted interventions are made universal the pre-intervention gap between the advantaged and the disadvantaged group is actually widened. Although the disadvantaged children may benefit from the intervention, the advantaged children benefit even more, therefore increasing the disparity. This effect is similar to concentrated advantage which suggests that high SES schools and neighborhoods maximize the potential of youth from high SES families (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Sucoff & Upchurch, 1998).

Other researchers (e.g., Wilson, 1997) argue that the opposite effect is true such that the resources of high SES neighborhoods provide the greatest benefits for youth from families that lack resources. In other words, middle and high SES neighbors act as social buffers for youth from poorer families (Swisher & Whitlock, 2004). Similarly, the social inequality gap reduction model posits that participating in extracurricular activities will have more positive benefits for socioeconomically disadvantaged youth than for advantaged youth which would reduce the gap in achievement (Marsh & Kleitman, 2002). Bioecological theory reconciles these seemingly contradictory theoretical perspectives by positing a more detailed and nuanced interaction

between Person, Process, Context, and Time (Bronfenbrenner & Morris, 1998, 2006).

The Bioecological Theory of Development

Developmental systems theories, and particularly Bioecological theory, have frequently been applied to the study of adolescent activity involvement, and specifically positive youth development programs that are embedded in a neighborhood context. This section will discuss how adolescent programs provide an opportunity for intentional change via proximal processes.

At the core of the Bioecological theory of development are proximal processes which are considered to be the engine of development. Proximal processes are defined as "progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate external environment" (Bronfenbrenner & Morris, 2006, pp. 797). In order for development to take place, these proximal processes must operate over time. The exact length of time (quantity) or the quality of that time are not specified. Proximal processes can occur naturally by chance or by design. A child is exposed to proximal processes in his or her immediate environment naturally. For example, the interaction between mother and child can be considered a naturally occurring proximal process. On the other hand, proximal processes can occur by design via an intervention aimed at increasing the proximal processes to which a child is exposed. Youth development programs and other extracurricular activities can provide proximal processes by design. Inasmuch as youth development programs are defined according to their ability to provide positive adult/youth relationships, skill building, opportunities for youth participation and leadership, and increasingly complex and challenging activities (Eccles & Gootman, 2002;

Lerner, 2004; Roth & Brooks-Gunn, 2003), and consistent participation in such programs can be considered an element of the immediate environment, then participating in youth development programs (and other extracurricular activities that include features of PYD programs) implies engagement in proximal processes by design.

Process, however, does not occur in a vacuum; Bioecological Theory stipulates that the developmental effects of process will vary as a function of Person, Context, and Time. Specifically, process is expected to have its greatest impact on children in the most disadvantaged settings (context). However, within these disadvantaged settings, children with the most positive person-level factors (e.g., self-regulation) are expected to benefit the most. The effects of process are also posited to vary as a function of context and type of outcome. In other words, "the greater developmental impact of proximal processes on children growing up in disadvantaged or disorganized environments is expected to occur mainly for outcomes reflecting developmental *dysfunction*. By contrast, for outcomes indicating developmental *competence*, proximal processes are posited as likely to have greater impact in more advantaged and stable environments" (Bronfenbrenner & Morris, 2006, pp. 803). In the preceding quote, proximal processes refer to those processes that occur in the environment naturally. For example, to the extent that parents in disadvantaged environments are able to engage in proximal processes, the effects of process are more likely to reduce dysfunction rather than enhance competence. However, proximal processes by design, or interventions aimed at providing developmental resources and encouraging engagement in proximal processes over time will positively impact outcomes of competence, particularly for youth in more disadvantaged

settings. “If persons are exposed over extended periods of time to settings that provide developmental resources and encourage engagement in proximal processes to a degree not experienced in the other settings in their lives, then the power of proximal processes to actualize genetic potentials for developmental competence will be greater for those living in more disadvantaged and disorganized environments” (Bronfenbrenner & Morris, 2006, pp. 819).

In sum, Bioecological theory predicts that proximal processes will have the greatest impact on the healthiest youth living in the most disadvantaged environments. The quantity and quality of those processes are not clearly addressed in the theory; however, it is reasonable to expect that, at least initially, higher quantity and quality processes will result in more favorable outcomes.

Self-Regulation: A Person-level Characteristic

Self-regulation is a person-level characteristic that has recently been shown to predict positive development (Gestsdottir & Lerner, 2007; Zimmerman, Phelps, & Lerner, 2007). According to life span theory, self-regulation is defined according to the processes of selection, optimization, and compensation (SOC). “Selection involves goals or outcomes; Optimization involves goal-related means to achieve success (desired outcomes); and Compensation involves a response to loss in goal-relevant means in order to maintain success or desired levels of functioning (outcomes)” (Baltes, Lindenberger, & Staudinger, 2006, pp. 591). These three processes of self-regulation refer to what an individual uses to regulate his or her relationship with the environment. The SOC model emphasizes those aspects of the individual that would lead him or her to select and capitalize on the supports

available within the ecological context and articulates the plasticity of individual-context relations across the life-span (Lerner, 2005; Lerner, In press).

Using data from the 4-H Study of Positive Youth Development, Gestsdottir and Lerner (2007) and Zimmerman, Phelps, & Lerner (2007) found that in early adolescence, self-regulation is most appropriately measured as an undifferentiated, global process. In other words, the three distinct components of self-regulation that are typically found in adult populations (selection, optimization, and compensation) are not clearly differentiated in early adolescence. In addition, they found that self-regulation remains stable across the early adolescent years (grades five, six, and seven) and is predictive of future increased positive development and decreased risk taking/problem behaviors.

Purpose, Goals, and Objectives

This research begins to explore how participation in extracurricular activities affects the course of positive youth development in neighborhoods with varying levels of ecological assets. Specifically, this study aims to assess whether participation in extracurricular activities has a more powerful effect for youth in asset rich neighborhoods (increasing the gap between the disadvantaged and the advantaged) or for youth in asset poor neighborhoods (decreasing the gap between the disadvantaged and the advantaged).

Two hypotheses were tested as part of this study. The hypotheses were generated in response to the propositions laid out in Bioecological Theory and aimed to assess the influence of Person, Process, Context, and Time. Particular attention was paid to the impact that activity participation has on youth in low asset neighborhoods since potential interventions for these youth

are most needed. For each of these hypotheses, positive developmental outcomes were assessed using a composite measure of PYD based on the 5 Cs of positive youth development. Negative developmental outcomes were also assessed using measures of internalizing (depression) and externalizing (delinquency and substance use) problems.

Overall Hypothesis: Participation in extracurricular activities has the greatest impact on youth in low asset neighborhoods, but within low asset neighborhoods, youth with the most favorable person-level characteristics (self-regulation) benefit the most.

(1) The positive impact of participating in extracurricular activities varies inversely with the asset level of the neighborhood, such that youth in the lowest asset neighborhoods who participate in extracurricular activities have the most positive developmental outcomes.

(2) Of the youth who live in low asset neighborhoods, those youth with the most favorable person-level characteristics (self-regulation) have the most positive developmental outcomes.

CHAPTER 3

METHODS

This chapter describes the methods employed for the current study. The data for the study are from the first wave (school year 2002-2003), and third wave (school year 2004-2005) of the 4-H Study of Positive Youth Development (Lerner et al., 2005).

Wave one of the national 4-H Study of Positive Youth Development included a diverse group of 1,700 fifth-grade adolescents and 1,117 of their parents. The youth were recruited from sites in 40 cities or towns located in 13 states that included regional, rural-urban, religious, and racial/ethnic variation (Lerner et al., 2005). The same youth were tested again in Waves two and three and an additional sample of previously unassessed youth were added at each wave.

This study utilized a subsample of participants from the larger study; the subsample included six school districts that represent different regions of the country (Northeast, North Central, Southeast, and Southwest). This subsample was selected due to the availability of ecological measures collected by Theokas and Lerner (2006). At the first wave of data collection this subsample consisted of 646 fifth graders (M age = 11.06, SD = .51) (Theokas & Lerner, 2006). For the purposes of this study, the participants' data were included in the analyses if data were available for both Waves one and three of data collection. Attrition from the original Theokas and Lerner subsample was high and thus the potential for bias in the results is a concern.

Attrition has been reported in the complete sample and is not randomly distributed across schools (Jelicic, Bobek, Phelps, Lerner, & Lerner, 2007). From Wave one to Wave two, 561 participants were lost due to principals/superintendents withdrawing their school from the study. Of the remaining participating schools, attrition was only 10%. When compared on background variables, there were notable differences between the youth who remained in the study and those who did not. The youth who provided data for Wave two had mothers with higher levels of education (mean = 14.2 years) than the attrition sample (mean = 13.5 years); and had higher per capita family income (mean = $14,350.4) as compared to the attrition sample (mean = $12,613.1) (Jelicic, Bobek, Phelps, Lerner, & Lerner, 2007). There were also small differences in the racial/ethnic distribution of the samples with more European Americans in the continuing group (60.6%) than in the attrition sample (51.7%) and fewer African Americans in the continuing group (5.6%) than in the attrition sample (11.6%).

Characteristics of the Subsample

In the current study, the total sample included 208 youth (41.3% male) who were in fifth grade at Wave one (M age = 11.03, SD = 0.43) and seventh grade at Wave three (M age = 13.10, SD = 0.44). The average annual per capita family income was $15,371.06 (SD = $10,443.57). The small sample size and the level of attrition limits the conclusions that can be drawn from this study. Although longitudinal data was utilized, causation cannot be inferred. Imputation will be used in the future to maximize statistical and explanatory power (Little, Card, Preacher, & McConnell, In preparation).

Table 1 provides demographic information on the current study subsample. Since previous studies using the data from the 4-H Study of

Positive Youth Development have found gender differences in patterns of activity involvement (Zarrett et al., 2007) and outcomes (Jelicic, Bobek, Phelps, Lerner, & Lerner, 2007; Theokas & Lerner, 2006), the data for this study were analyzed separately for boys and girls. Table 2 and Table 3 provide demographic information on the current study subsample disaggregated by gender.

Table 1. Participants' characteristics: Geographic region, race or ethnicity, household income

	(%)
Participants' geographic location	
Northeastern: MA	8.7
North Central: MN	29.8
Southeastern: FL	33.7
Southwestern: AZ	27.9
Students' race or ethnicity (as reported by student)	
European American	40.9
Latino or Latina	33.7
African American	5.8
Native American	1.0
Asian American, Pacific Islander	3.8
Multiethnic or Multiracial	3.8
Other	11.1
Average Per Capita Family Income	
Under $15,000 per year	51.0
$15,000 to $24,999 per year	27.9
$25,000 to $34,999 per year	17.3
$35,000 to $44,999 per year	2.9
$45,000 to $54,999 per year	0.5
$55,000 to$64,999 per year	0.5

Table 2. Geographic region, race or ethnicity, household income for boys

	(%)
Participants' geographic location	
Northeastern: MA	10.5
North Central: MN	29.1
Southeastern: FL	36.0
Southwestern: AZ	24.4
Students' race or ethnicity (as reported by student)	
European American	37.2
Latino or Latina	33.7
African American	7.0
Native American	1.2
Asian American, Pacific Islander	2.3
Multiethnic or Multiracial	7.0
Other	11.6
Average Per Capita Family Income	
Under $15,000 per year	43.0
$15,000 to $24,999 per year	25.6
$25,000 to $34,999 per year	27.9
$35,000 to $44,999 per year	2.3
$45, year000 to $54,999 per	1.2

Table 3. Geographic region, race or ethnicity, household income for girls

	(%)
Participants' geographic location	
Northeastern: MA	7.4
North Central: MN	30.3
Southeastern: FL	32.0
Southwestern: AZ	30.3
Students' race or ethnicity (as reported by student)	
European American	43.4
Latino or Latina	33.6
African American	4.9
Native American	1.0
Asian American, Pacific Islander	4.9
Multiethnic or Multiracial	1.6
Other	10.7
Average Per Capita Family Income	
Under $15,000 per year	56.6
$15,000 to $24,999 per year	29.5
$25,000 to $34,999 per year	9.8
$35,000 to $44,999 per year	3.3
$45,000 to $54,999 per year	1.0

The two groups of youth (those in the original Theokas and Lerner (2006) subsample and those in the current study) were compared on several variables. Attrition was not randomly distributed for the subsample. From the

initial 646 youth included in the Theokas and Lerner (2006) subsample, 438 participants were lost due to missing data. In the future, data imputation methods will be used. Many of these youth did not participate in the third wave of data collection. When compared on background variables, there were some notable differences between the youth in the original subsample and those in the current study. The youth in the current study had higher per capita family income (mean = $15,371.06) as compared to the original subsample (mean = $14,585.84, $p < .001$). While the participation rates for Asian American, African American, Latino/a, multiethnic/multiracial, other, and inconsistent classifications did not differ across the two groups, there were some significant differences in the race/ethnic distribution of the two samples. There was a higher percentage of Native Americans in the original subsample (4.4%) than in the current study subsample (1.0%, $p < .01$); and there was a higher percentage of European Americans in the current study subsample (40.9%) than in the original subsample (31.6%, $p < .01$). There was also a higher percentage of males in the original subsample (52.1%) than in the current study subsample (41.3%, $p < .01$).

When considering outcome variables measured in Wave one, the original Theokas and Lerner (2006) subsample had slightly lower PYD scores (mean = 73.18) and slightly higher risk behavior scores (mean = 1.61) than did the current sample (means = 75.73, 1.12, respectively; $p < .05$). There were no significant differences between the two samples on the measure of depression.

Data Collection

Students were given a two-hour block of time at school to complete the student questionnaire which included measures related to the five Cs of PYD,

individual and ecological assets, pubertal level of development, problem behaviors, developmental regulation, activities, and demographics (Lerner, et al., 2005). Parents/guardians were asked to complete a questionnaire that included items about the family and neighborhood. A school survey which included questions about the academic climate of the school as well as resources available at the school (e.g. tutors, playgrounds) was completed by the principal or a designated representative but was not utilized in this study.

Outcome Measures

Three outcome measures were used, a composite measure of positive youth development and two measures of negative development: depression and substance use/delinquency. All three outcome measures were obtained from the student questionnaire at Wave three of data collection.

The PYD composite score is based on 17 well-validated scales that assess positive adolescent characteristics (Lerner, et al., 2005). The PYD composite score was calculated using the mean scores on the confidence, competence, character, caring, and connections subscales. Previous research (Lerner, et al., 2005) found evidence supporting the factors representing the five Cs and their convergence on the PYD latent construct. Lerner, et al. (2005) specified a model whereby residual errors were allowed to correlate between indicators within scales. The confidence subscale assesses positive identity (Profiles of Student Life – Attitudes and Behaviors (PSL-AB); Leffert et al., 1998) and self-worth (Self –Perception Profile for Adolescents (SPPA); Harter, 1983). The competence subscale assesses school engagement (PSL-AB), grades, academic competence (SPPA; Harter, 1983), and social competence (SPPA; Harter, 1983). The character subscale includes interpersonal skills (PSL-AB), values diversity (PSL-AB), social conscience

(PSL-AB), and personal values (PSL-AB). Caring is assessed using the Eisenberg Sympathy Scale (ESS; Eisenberg et al., 1996). The connections subscale includes connection to family (PSL-AB), connection to school (PSL-AB), connection to community (PSL-AB), and connection to peers (Teen Assessment Project (TAP); Small & Rodgers, 1995). Cronbach's alphas for the PSL-AB ranged from .53 to .92 (for the original Wave 1 full sample). Cronbach's alpha on the TAP was .76, ranged from .64 to .72 on the SPPA, and was .87 on the ESS (for the original Wave 1 full sample).

Negative developmental characteristics were measured with two scales representing internalizing (depression) and externalizing (delinquency and substance use) problems. The nine-item external behavior scale (Cronbach α = .73; full sample) was developed for the 4-H study based on items from Profiles of Student Life: Attitudes and Behaviors Scale (Leffert et al., 1998) and the Monitoring the Future Questionnaire (2000). Depressive symptoms were measured with the Center for Epidemiological Studies Depression Scale (Cronbach α = .83; Wave 1 full sample) (CES-D; Radloff, 1977).

Predictor Variables

The hypotheses were assessed using several predictor variables including per capita family income, self-regulation (SOC), activity involvement, and neighborhood asset scores (physical resources, human resources, collective activity, and accessibility), all measured at Wave one.

Self-regulation. Self-regulation was measured using the nine-item version of the SOC model (Gestsdottir & Lerner, 2007). Each participant had a SOC score which is the sum across the nine dichotomous items (range 0-9). For this study, only the Wave one SOC score was used since scores on SOC

remain stable during early adolescence (Gestsdottir & Lerner, 2007; Zimmerman, et al., 2007).

Activity Involvement. Intensity of extracurricular activity involvement at Wave one was measured and data were obtained from the student questionnaires. The goal was to estimate how much time each youth spends in extracurricular activities. Youth ranked their involvement in several activities where 0 = no involvement, 1 = a few times a year, 2 = once a month, 3 = several times a month, 4 = once a week, 5 = several times a week, and 6 = other. Youth were asked to indicate their level of involvement in the following activities: Girl Scouts/Boy Scouts, 4-H Clubs, Boys Clubs/Girls Club, Martial Arts, Tutoring, Paid Work, Mentoring/Peer Advising, Dance, Music, Religious Youth Group, Academic Clubs, School Government, Religious Education, Sports, School Band, Acting/Drama, Volunteer Work, YMCA/YWCA, Big Brothers/Big Sisters, and after school child care program. Qualitative responses were also coded and included in the analyses.

Although the quality of these activities and programs surely impacts their effectiveness, this study is operating under the general assumption that more time in extracurricular activities is better than less time in extracurricular activities (see Mahoney, Harris, & Eccles, 2006). This study focused on measuring the quantity of activity involvement; future studies will address differences in the quality of activity involvement.

Neighborhood Assets. Theokas and Lerner (2006) have documented the presence of ecological assets within the neighborhoods of the selected subsample. This information was collected from the 2000 Census reports, the National Center for Educational Statistics (NCES), the student questionnaires, city websites, county websites, and online directories. The indicator of

neighborhood human resources[1] was a composite score based on the percentage of college-educated residents in the neighborhood (Census 2000) and the availability of adult mentors (Student Questionnaire: “Do you have at least one adult, other than your parent, you can talk to if you had a problem?”). The indicator of physical resources was a composite score based on the availability of a library (NCES), youth facilities (online – includes local youth center, Boys & Girls Club, YMCA), and recreation opportunities (online – includes city/town parks, state/national parks, recreation program). The indicator of collective activity was a composite score based on the presence of a community organization (online – includes community center, community development corporation), a neighborhood group (online – an organization that represents the needs of the neighborhood), and a youth coalition (online – a local organization devoted to youth development and needs). The indicator of accessibility was a composite score based on the percent of residents who have lived in the neighborhood for more than five years (Census 2000) and the ratio of adults to children (Census 2000) (see Table 4).

[1] Human Resource scores varied at the individual level since the score is based, on individual responses on the student questionnaire. For all other asset scores, youth living in the same census tract have the same asset score.

Table 4. Observed neighborhood ecological assets

Indicator	Source of Items	Range	Items	Mean (SD)
Human Resources				
Education Level	Census 2000	1 – 68	Percent of college educated residents	23.14 (17.2)
Employment Level	Census 2000	23 - 81	Percent of employed adult males	68.31 (16.3)
Adult Mentors	SQ	0 - 2	Do you have at least one adult, other than your parent, you can talk to if you had a problem?	1.14 (.57)
Physical Resources				
Library	NCES	0 – 1	A local library	.12 (.32)
Youth Facilities	Online	0 – 3	a) Local youth center b) Boys & Girls Club c)YMCA	.39 (.54)
Recreation Opportunities	Online	0 – 3	a) City/town parks b) State/national parks c) Recreation program	1.29 (.65)
Collective Activity				
Community Organization	Online	0 – 1	a) Community Center b) Community Development Corporation	.09 (.28)
Neighborhood Group	Online	0 – 1	An organization that represents the needs of the neighborhood	.28 (.45)
Youth Coalition	Online	0 - 1	A local organization devoted to youth development and needs	.61 (.49)
Accessibility				
Neighborhood Stability	Census 2000	22 – 79	Percent of residents in neighborhood more than five years	49.51 (9.8)
Ratio Adults to Children	Census 2000	1.45 - 12.69		2.91 (1.5)

Note. SQ = Student Questionnaire

Conclusions

This chapter provided information on the characteristics of the sample including demographic data and information on attrition. A brief description of data collection was included along with an explanation of predictor and outcome variables. The next chapter presents the results of the study.

CHAPTER 4

RESULTS

This chapter presents the results of the current study. This dissertation aimed to assess whether activity involvement differentially affects youth depending upon the resources available to them in the neighborhood in which they are embedded. The current study built upon research conducted by Theokas and Lerner (2006) in which they identified and measured observed ecological assets available in neighborhoods. The ecological assets available to youth in their neighborhoods are categorized as physical resources, human resources, collective activity, and accessibility. Neighborhood ecological assets were measured at the census tract level and are presented by county in the following section.

Neighborhood Assets

Before examining the relationship between activity involvement, neighborhood assets, and youth outcomes, the profile of neighborhood assets across the four asset dimensions was examined. The expectation was that some neighborhoods would score either consistently high or consistently low on all of the asset dimensions such that a neighborhood could be categorized as generally asset rich or generally asset poor. However, upon closer examination, a richer profile of the neighborhoods emerged whereby neighborhoods exhibited variation across the asset dimensions.

When the data were aggregated at the county level, this variation in neighborhood asset profiles was clear. Table 5 presents the mean scores and standard deviations for the neighborhood asset dimensions across the four

counties; Figure 1 provides a visual representation of this variation at the county level.

Table 5. Mean scores and standard deviations for community asset variables across the four counties

	Physical Resources		Collective Activity		Accessibility		Human Resources	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Worcester (n = 18)	0.00	0.31	-0.13	0.44	0.18	0.51	-0.05	0.37
Missoula (n = 62)	-0.78	0.29	0.59	0.45	0.04	0.15	0.45	0.33
Miami-Dade (n = 70)	0.47	0.57	-0.40	0.48	0.32	0.71	0.39	0.56
Pima (n = 58)	-0.08	0.55	0.15	0.36	-0.31	0.74	-0.47	0.49

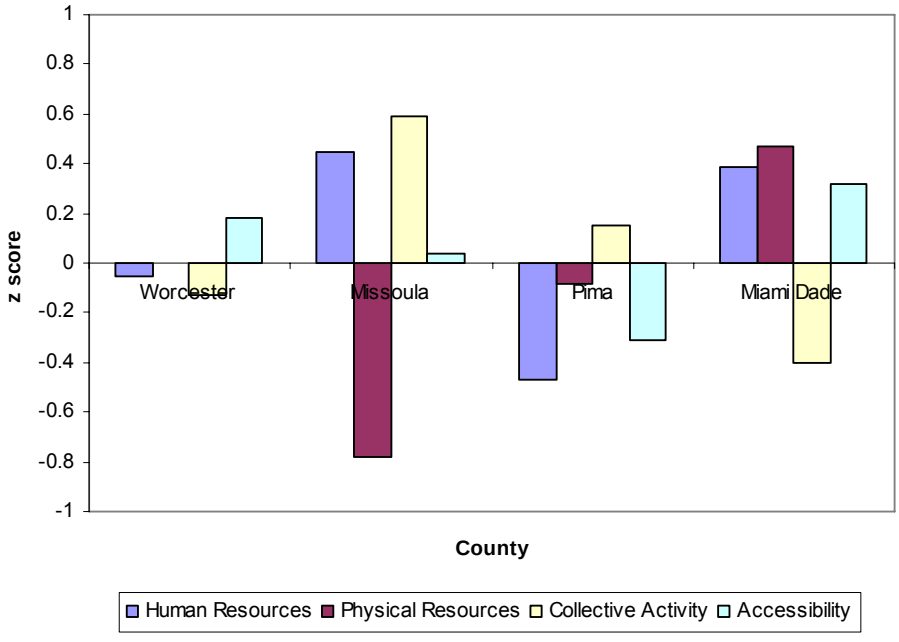

Figure 1. Mean neighborhood asset scores by county

Table 6. Mean scores for neighborhood asset variables by census tract for Worcester county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
7301 (n = 3)	-0.08	-0.66	0.92	0.35
7311.01 (n = 5)	0.42	0.21	0.47	-0.09
7312.01 (n = 2)	-0.08	-0.66	-0.36	0.43
7322.03 (n = 1)	-0.08	0.21	-0.51	0.26
7323 (n = 1)	-0.59	-0.66	0.66	0.11
7324 (n = 4)	-0.08	0.21	-0.30	-0.37
7326 (n = 1)	-0.59	-0.66	-0.18	-0.72
7330 (n = 1)	-0.08	0.21	0.06	-0.46

Contrary to expectations, the counties could not be classified as either asset rich or asset poor. To confirm this, the data were disaggregated and examined at the census tract level. Table 6, Table 7, Table 8, and Table 9 present the mean scores for neighborhood asset variables by census tract and county. Figure 2, Figure 3, Figure 4, and Figure 5 provide a visual representation of this information. These data were further disaggregated by gender and the results are presented in Appendix A.

Table 7. Mean scores for neighborhood asset variables by census tract for Missoula county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
2.01 (n = 1)	-0.03	1.76	-0.77	0.11
2.02 (n = 20)	-1.14	0.89	-0.07	0.37
14 (n = 3)	-1.14	0.89	0.39	0.77
15 (n = 16)	-0.59	0.89	0.04	0.53
16 (n = 22)	-0.59	0.01	0.13	0.43

Table 8. Mean scores for neighborhood asset variables by census tract for Pima county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
37.01 (n = 8)	0.47	0.01	-0.59	-0.38
37.02 (n = 3)	-0.59	0.01	-0.55	-0.18
37.04 (n = 1)	1.09	0.89	0.08	-0.47
37.05 (n = 3)	-0.59	0.89	0.13	-0.38
38.02 (n = 1)	2.10	1.76	0.02	-1.33
39.01 (n = 1)	-0.03	0.89	1.21	-0.05
39.03 (n = 1)	-0.59	0.89	1.20	-0.45
41.04 (n = 17)	-0.59	0.01	-1.12	-0.22
41.05 (n = 4)	0.47	0.01	-0.32	-1.04
41.06 (n = 9)	-0.08	0.01	0.24	-1.18
41.10 (n = 4)	-0.03	0.01	1.03	-0.34
41.11 (n = 1)	-0.03	0.89	-1.74	0.43
41.12 (n = 4)	0.47	0.01	0.36	-0.21
44.09 (n = 1)	-0.59	0.01	-0.06	0.00

Table 9. Mean scores for neighborhood asset variables by census tract for Miami-Dade county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
1.11 (n = 13)	1.09	-0.66	0.68	0.55
1.12 (n = 2)	-0.59	-0.66	2.80	-0.52
1.14 (n = 1)	-0.03	-0.66	3.04	-.011
1.15 (n = 2)	0.47	-0.66	0.97	-0.12
2.24 (n = 1)	-0.08	0.23	0.08	0.43
27.01 (n = 1)	-0.59	-0.66	0.56	-0.38
37.02 (n = 1)	-0.59	-0.66	-0.55	-0.01
46.01 (n = 9)	1.09	-0.66	-0.05	1.00
46.02 (n = 2)	0.47	-0.66	-0.05	0.97
65 (n = 1)	-0.59	-0.66	0.94	0.36
93.06 (n = 1)	-0.59	-0.66	0.64	-0.22
97.01 (n = 23)	0.47	-0.27	0.32	0.55
98.01 (n = 1)	-0.03	-0.66	-0.33	0.82
98.02 (n = 5)	-0.59	-0.66	0.08	0.17
110.01 (n = 1)	-0.03	0.01	-0.96	-0.30
113 (n = 5)	0.47	0.88	-0.79	-0.39
114.02 (n = 1)	-0.03	-0.66	-0.66	-1.32

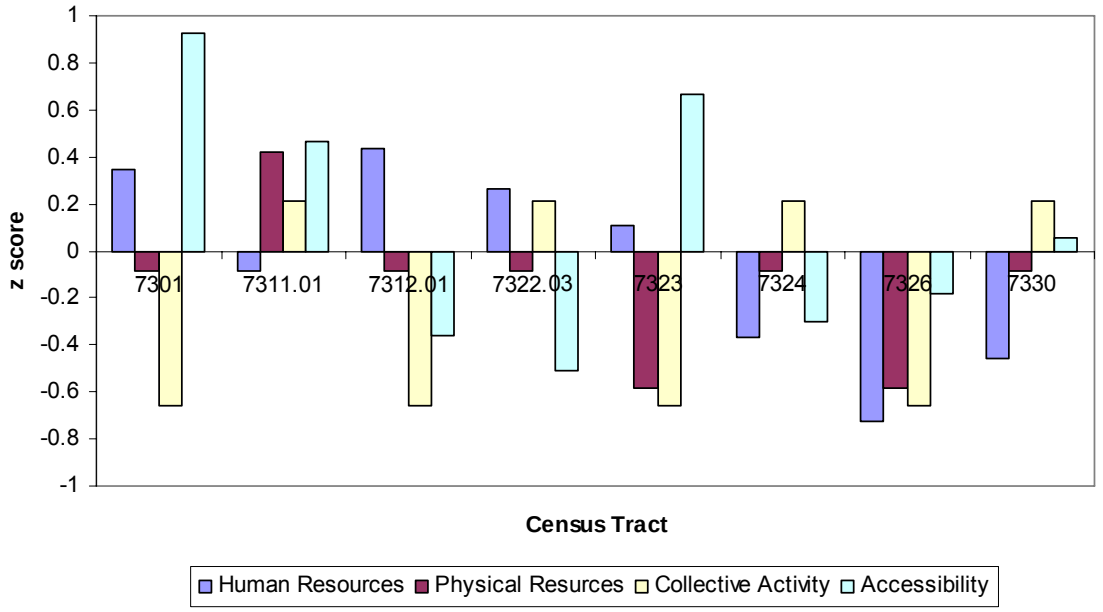

Figure 2. Worcester county neighborhood asset scores by census tract

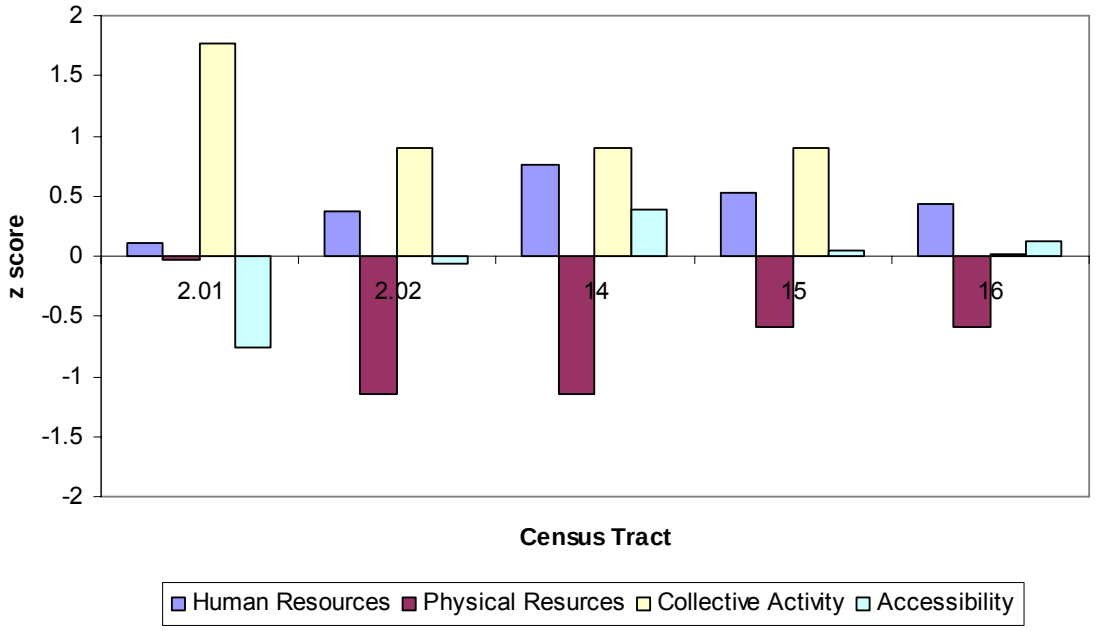

Figure 3. Missoula county neighborhood asset scores by census tract

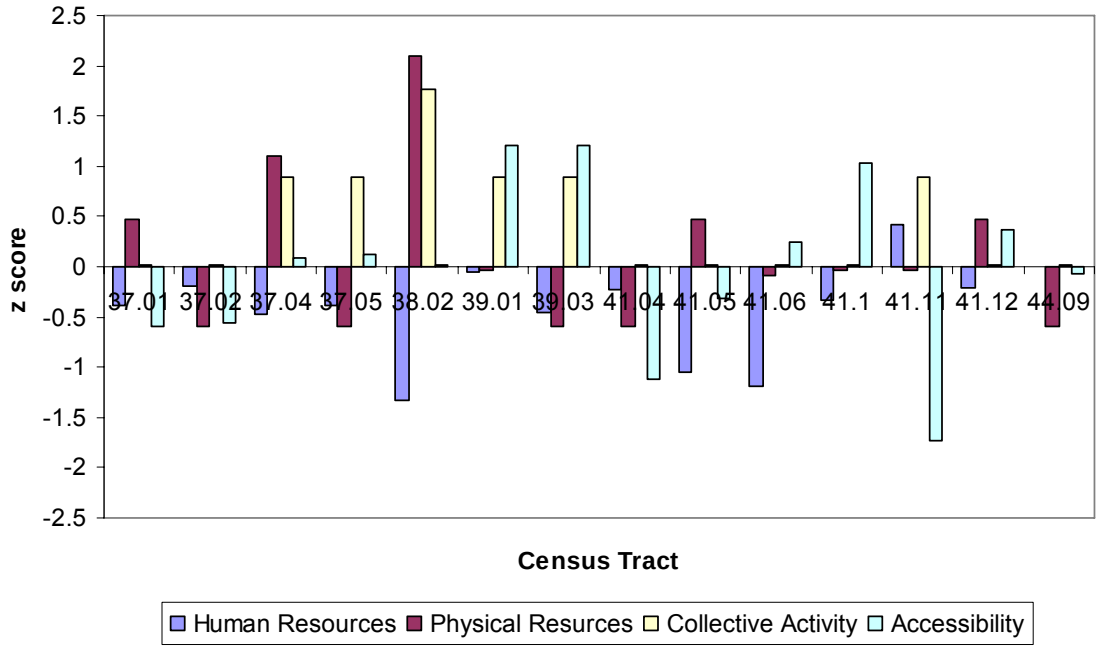

Figure 4. Pima county neighborhood asset scores by census tract

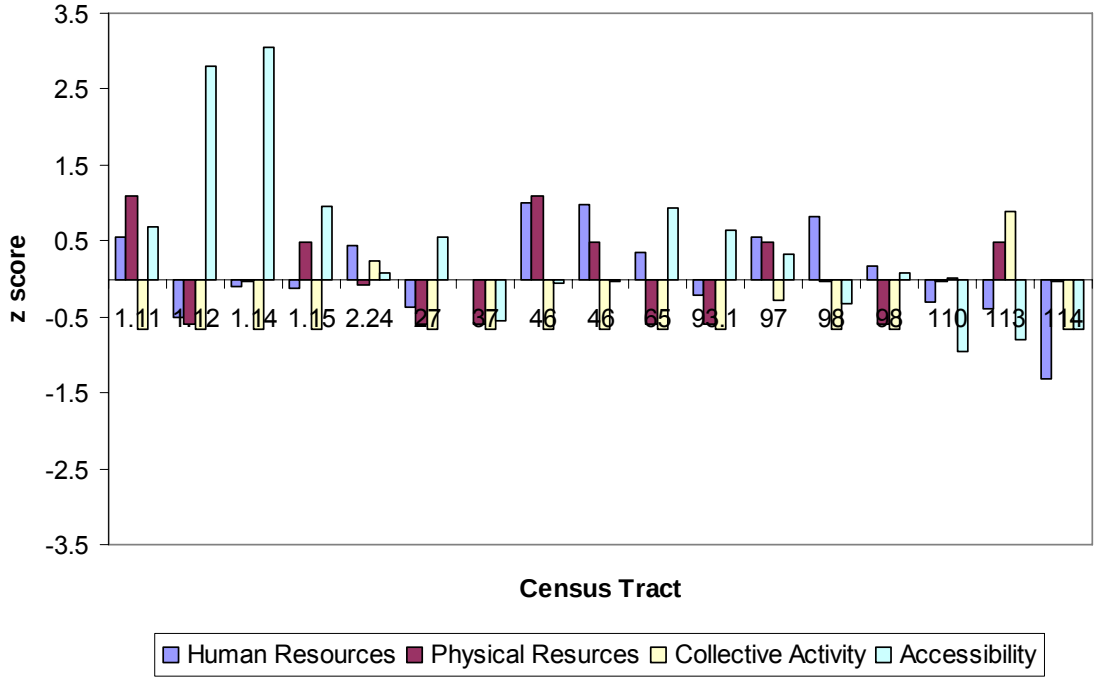

Figure 5. Miami-Dade county neighborhood asset scores by census tract

Descriptive Results

Before analyzing the multi-level models, descriptive statistics for the outcome variables (Table 10), predictor variables (Table 11), and correlations among the variables of interest (Table 12) were explored.

Table 10. Descriptive statistics for the outcome variables

Construct	Range	Mean	Standard Deviation	Skewness	Kurtosis
PYD	25.6-98.6	71.4	12.4	-0.3	2.9
Risk Behavior	0-22.9	2.0	3.5	3.0	14.2
Depression	0-51	13.3	9.8	1.3	2.9

Table 11. Descriptive statistics for the predictor variables

Construct	Range	Mean	Standard Deviation	Skewness	Kurtosis
Activity Involvement	0-56	16.99	11.95	0.66	3.13
SOC	1-9	6.59	1.83	-0.61	2.84
Income	1428.57-55416.67	15371.06	10443.57	0.87	3.65
Physical Resources	-1.14-2.10	-0.10	0.69	0.37	2.33
Collective Activity	-0.66-1.76	0.07	0.59	0.34	2.22
Human Resources	-1.91-1.51	0.13	0.61	-0.49	3.27
Accessibility	-1.74-3.04	0.05	0.64	0.79	7.48

Table 12. Correlations among neighborhood asset scores, dependent variables, and covariates

	Construct	1	2	3	4	5	6	7	8	9	10
1	Human Resource	-	.027	-.091	.135	-.016	-.193**	.252**	.247**	.169*	.035
2	Physical Resource		-	-.473**	.177*	.210**	.024	-.050	-.132	.069	-.100
3	Collective Activity			-	-.266**	-.162*	-.048	.095	.035	.057	.050
4	Accessibility				-	.090	-.093	-.005	.013	-.033	-.013
5	Risk Behaviors					-	.260**	-.481**	.012	-.217**	-.097
6	Depression						-	-.443**	-.036	-.124	-.001
7	PYD							-	.164*	.378**	-.009
8	Activity								-	.133	-.037
9	SOC									-	.009
10	Income										-

Note.
* p < .05, ** p < .01

As would be expected, several neighborhood asset variables were significantly correlated. Physical resources were positively correlated with accessibility; however, physical resources were negatively correlated with collective activity. Collective activity was correlated with accessibility. Interestingly, income was not significantly correlated with any other variables, including the neighborhood asset variables.

Since the multi-level models were analyzed separately by gender, descriptive statistics (Table 13, Table 14, Table 15, and Table 16) and correlations among the variables of interest (Table 17 and Table 18) are also presented separately by gender. Girls scored slightly higher than boys on the measure of PYD ($t = -2.58$, $p < .01$).

Girls reported higher levels of activity involvement ($M = 18.35$, $SD = 12.60$) than boys ($M = 15.06$, $SD = 10.75$, $p < .05$). Boys tended to live in neighborhoods that scored higher in physical resources ($M = .01$, $SD = .72$) than girls ($M = -.18$, $SD = .66$, $p < .05$) and higher in accessibility (boys $M = .16$, $SD = .52$; girls $M = -.03$, $SD = .71$, $p < .05$). Boys tended to live in families with higher per capita family income ($M = \$17,444$, $SD = \$10,642$) than girls ($M = \$13,910$, $SD = \$10,091$, $p < .05$). Boys and girls did not significantly differ in their scores on SOC, human resources, and collective activity.

Table 13. Descriptive statistics for the outcome variables for boys

Construct	Range	Mean	Standard Deviation	Skewness	Kurtosis
PYD	25.61-98.95	68.75	13.21	-0.31	3.13
Risk Behavior	0-20	2.58	3.75	2.32	9.18
Depression	0-44	12.01	8.58	1.43	5.62

Table 14. Descriptive statistics for the outcome variables for girls

Construct	Range	Mean	Standard Deviation	Skewness	Kurtosis
PYD	46.68-95.48	73.21	11.55	-0.21	2.31
Risk Behavior	0-22.86	1.66	3.28	3.66	20.43
Depression	0-51	14.10	10.49	1.11	3.81

Table 15. Descriptive statistics for the predictor variables for boys

Construct	Range	Mean	Standard Deviation	Skewness	Kurtosis
Activity Involvement	0-45	15.06	10.75	0.80	3.26
SOC	2-9	6.44	1.74	-0.36	2.53
Income	1666.67 -50416.67	17443.82	10642.03	0.51	2.82
Physical Resources	-1.14 - 2.10	0.01	0.72	0.37	2.38
Collective Activity	-0.66-1.76	0.02	0.61	0.47	2.33
Human Resources	-1.91 - 1.51	0.12	0.66	-0.51	3.64
Accessibility	-1.12 -1.21	0.16	0.52	-0.51	3.39

Table 16. Descriptive statistics for the predictor variables for girls

Construct	Range	Mean	Standard Deviation	Skewness	Kurtosis
Activity Involvement	0-56	18.35	12.60	0.53	2.98
SOC	1 - 9	6.70	1.88	-0.78	3.09
Income	1428.57 -55416.67	13909.93	10090.78	1.18	4.77
Physical Resources	-1.14 - 1.09	-0.18	0.66	0.32	2.11
Collective Activity	-0.66 -1.76	0.11	0.58	0.26	2.18
Human Resources	-1.33 -1.10	0.14	0.57	-0.45	2.66
Accessibility	-1.74 -3.04	-0.03	0.71	1.29	8.48

For boys, collective activity was significantly correlated with physical resources and accessibility. Income was also significantly negatively correlated with physical resources for boys. Similarly, for girls, collective activity was significantly correlated with physical resources and accessibility; however, income was not significantly correlated with any of the other variables.

Table 17. Correlations among neighborhood asset scores, dependent variables, and covariates for boys

	Construct	1	2	3	4	5	6	7	8	9	10
1	Human Resource	-	.090	-.154	.148	-.004	-.159	.315**	.273*	.245*	-.020
2	Physical Resource		-	-.434**	.210	.261*	-.068	.123	-.068	.166	-.262*
3	Collective Activity			-	-.261*	-.058	.063	-.060	.010	.086	.089
4	Accessibility				-	.111	-.065	.098	.053	.025	-.043
5	Risk Behaviors					-	.345**	-.509*	.174	-.165	-.235
6	Depression						-	-.525**	-.011	-.198	.097
7	PYD							-	.115	.399**	-.007
8	Activity								-	.054	-.017
9	SOC									-	-.032
10	Income										-

Note.
* p < .05, ** p < .01

Table 18. Correlations among neighborhood asset scores, dependent variables, and covariates for girls

	Construct	1	2	3	4	5	6	7	8	9	10
1	Human Resource	-	-.023	-.040	.140	-.034	-.206*	.193*	.233**	.113	.084
2	Physical Resource		-	-.507**	.137	.137	.058	-.139	-.150	.009	-.034
3	Collective Activity			-	-.264**	-.234*	-.082	.188*	.039	.037	.051
4	Accessibility				-	.050	-.085	-.023	.023	-.048	-.035
5	Risk Behaviors					-	.273**	-.452**	-.059	-.248*	-.030
6	Depression						-	-.451**	-.060	-.076	-.013
7	PYD							-	.161	.345**	.037
8	Activity								-	.166	-.013
9	SOC									-	.056
10	Income										-

Note.
* p < .05, ** p < .01

Multi-level Model Analyses: Hypothesis 1

The first hypothesis was that the positive impact of participating in extracurricular activities would vary inversely with the asset level of the neighborhood, such that youth in the lowest asset neighborhoods who participated in the most extracurricular activities would have the most positive developmental outcomes. A two-level model was employed to test this hypothesis, where level one was the child and level two was the census tract. A total of 24 models were tested. For each of the three outcome variables (PYD, depression, and risk behavior), eight models were tested; male and female for each of the neighborhood asset types: physical resources, human resources, collective activity, and accessibility. Hierarchic multiple regression was used to assess the relation between individual level control variables (SOC and income), activity involvement, and neighborhood assets. The first step was an unconditional model without any predictors. Next, the child level control variables were added (SOC and income). Finally, linear and quadratic terms for activity involvement were added. Based on previous findings (e.g., Mahoney, Harris, & Eccles, 2006), the quadratic term was entered to test for potential negative effects of high levels of activity involvement. In the last step, the neighborhood asset variable was entered as well as a neighborhood by activity involvement interaction term and a neighborhood asset by activity involvement squared interaction term. This final step addresses the first hypothesis while controlling for demographics and the influence of activity involvement alone.

Physical Resources and PYD. Physical resources and the interaction terms for physical resources and activity involvement predicted Wave three PYD for both boys and girls. For boys, self-regulation (SOC) at Wave one

positively predicted PYD, as did physical resources and the interaction of activity involvement and physical resources. The quadratic interaction term was negatively associated with PYD. Interestingly, activity involvement alone was not predictive of PYD for boys (Table 19).

Table 19. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between boys' positive youth development (PYD) and activity involvement and neighborhood physical resources, controlling for self-regulation (SOC) and income

	M1	M2	M3	M4
Intercept	68.93***	45.57**	39.08*	42.00**
SOC		2.79***	2.87***	2.76***
Per capita family income		6.11	8.49	6.08
Activity			0.42	0.36
Activity^2			-0.01	-0.01
Physical Resources				10.23*
Activity x Physical Resources				-1.46**
Activity^2 x Physical Resources				0.04***
δ_μ^2	50.60	42.41	40.00	45.89
δ_r^2	114.28	99.71	100.74	88.14
AIC	685.97	667.26	679.42	680.52
BIC	695.79	681.99	699.06	707.51
Change in -2LL		22.72***	-8.16	4.9

Note. Values based on sample with data available for PYD (n = 86)

* p < .05. **p < .01. ***p < .001.

In order to ease interpretation of the interaction terms, a graph of predicted values was plotted that describes the relationship between PYD, activity involvement and physical resources for boys (Figure 6). Appendix B presents figures of both the predicted models as well as the actual data points by gender for the purpose of comparison.

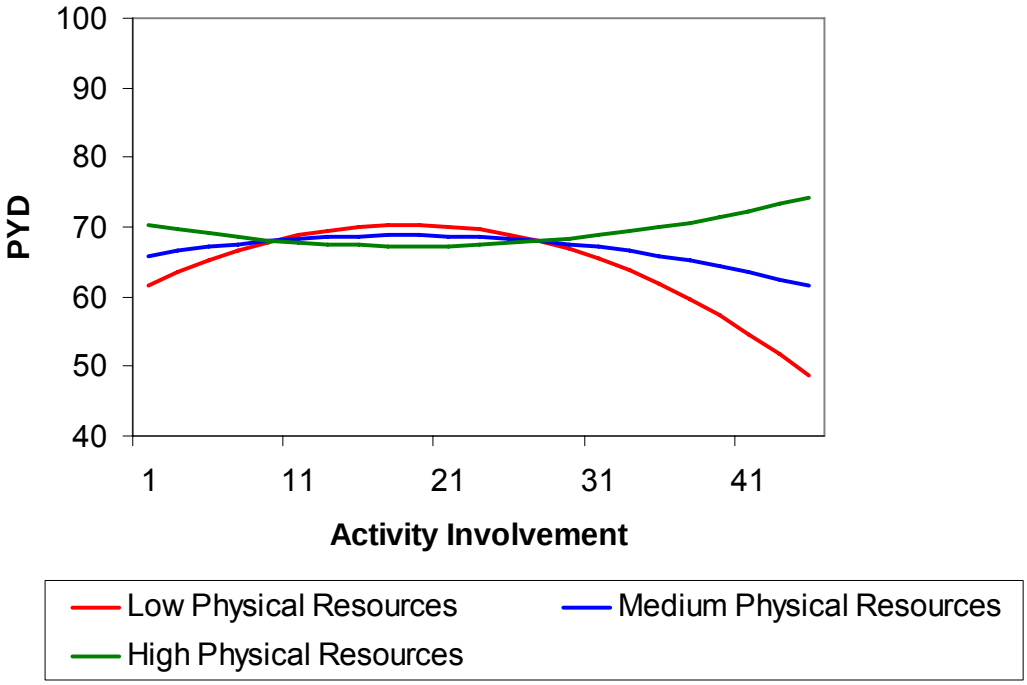

Figure 6. PYD predicted by activity involvement and physical resources for boys

At low levels of activity involvement, boys living in low physical resource neighborhoods scored lower on the measure of PYD as compared to boys living in high physical resource neighborhoods. At mid-level activity

involvement, boys from low physical resource neighborhoods exhibited an increase in PYD scores, whereas boys living in high physical resource neighborhoods exhibited a decrease in PYD scores. At very high levels of activity involvement, boys living in low physical resource neighborhoods exhibited a marked decrease in PYD scores, whereas boys living in high physical resource neighborhoods exhibited an increase in PYD scores.

A different pattern emerged for girls living in high versus low physical resource neighborhoods. As was the case for the boys, self-regulation, at Wave one positively predicted PYD scores at Wave three for girls, as did the interaction of activity involvement and physical resources. The quadratic interaction term was also negatively associated with PYD. However, unlike boys, activity involvement alone predicted PYD for girls (Table 20).

When the graph of the predicted values was plotted for girls, the interaction between physical resources and activity involvement was markedly different from the pattern that emerged for boys (Figure 7). At low levels of activity involvement, girls living in low physical resource neighborhoods scored higher on the measure of PYD as compared to girls living in high physical resource neighborhoods. For girls living in low physical resource neighborhoods, the relationship between activity involvement and PYD remained linear as activity involvement increases. Therefore, at high levels of activity involvement, girls living in low physical resource neighborhoods exhibited high levels of PYD. For girls living in high physical resource neighborhoods, the relationship between activity involvement and PYD appeared to be more complex. At mid-level activity involvement, these girls exhibited high levels of PYD. However, at high levels of activity involvement, girls living in high physical resource neighborhoods exhibited a decrease in

PYD scores. At high levels of activity involvement, girls living in *low* physical resource neighborhoods scored high on the measure of PYD, while boys living in *high* physical resource neighborhoods scored high on the measure of PYD.

Table 20. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between girls' positive youth development (PYD) and activity involvement and neighborhood physical resources, controlling for self-regulation (SOC) and income

	M1	M2	M3	M4
Intercept	72.74***	58.32***	56.02***	56.35***
SOC		2.04***	1.94***	1.74***
Per capita family income		0.84	0.49	0.50
Activity			0.31	0.52*
Activity^2			0.00	-0.01*
Physical Resources				-6.10
Activity x Physical Resources				0.84*
Activity^2 x Physical Resources				-0.02**
δ_μ^2	16.76	16.49	14.21	13.46
δ_r^2	104.77	92.87	93.81	88.17
AIC	944.97	926.40	939.82	942.39
BIC	956.19	943.22	962.25	973.24
Change in -2LL		22.58***	-9.42	3.42

Note. Values based on sample with data available for PYD (n = 122)

* p < .05. **p < .01. ***p < .001.

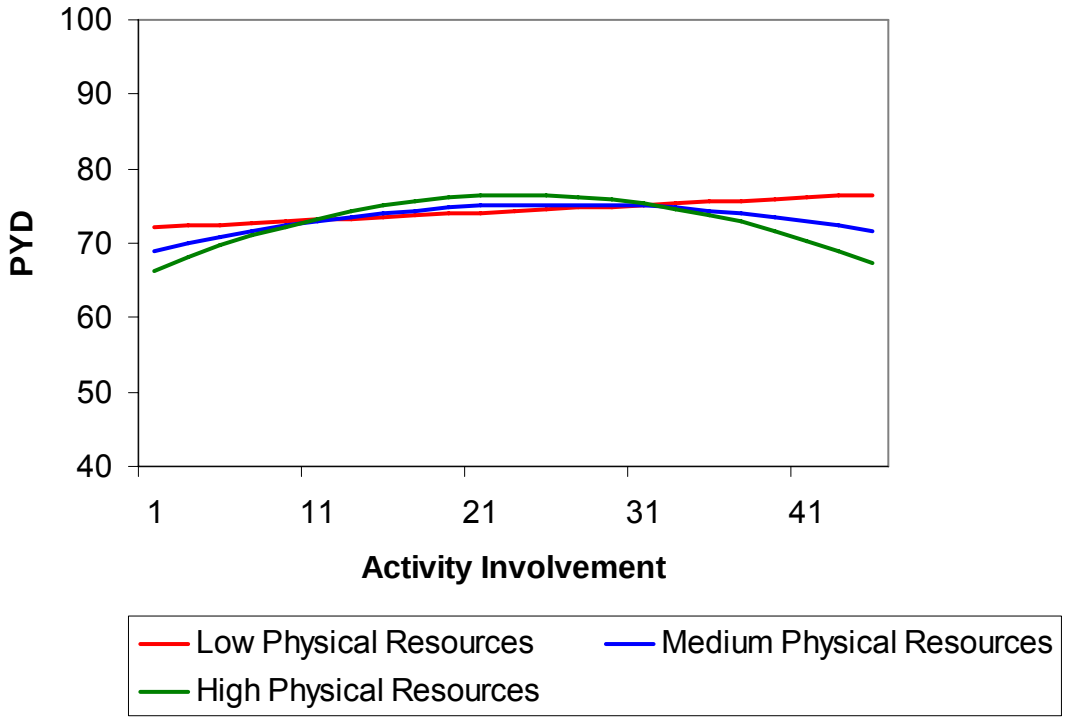

Figure 7. PYD predicted by activity involvement and physical resources for girls

Collective Activity and PYD. Self-regulation and the interaction terms for collective activity and activity involvement predicted Wave 3 PYD for both boys and girls. For boys, self-regulation at Wave one positively predicted PYD as did the interaction of activity involvement and collective activity. The quadratic interaction term was negatively associated with PYD. Activity involvement alone was not predictive of PYD for boys (Table 21).

Table 21. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between boys' positive youth development (PYD) and activity involvement and neighborhood collective activity, controlling for self-regulation (SOC) and income

	M1	M2	M3	M4
Intercept	68.93***	45.57**	39.08*	41.62**
SOC		2.79***	2.87***	2.93***
Per capita family income		6.11	8.49	6.45
Activity			0.42	0.36
Activity^2			-0.01	-0.01
Collective Activity				-10.30
Activity x Collective Activity				1.26*
Activity^2 x Collective Activity				-0.03*
δ_μ^2	50.60	42.41	40.00	43.55
δ_r^2	114.28	99.71	100.74	96.35
AIC	685.97	667.26	679.42	684.42
BIC	695.79	681.99	699.06	711.42
Change in -2LL		22.72***	-8.16	1.00

Note. Values based on sample with data available for PYD (n = 86)

* p < .05. **p < .01. ***p < .001.

To ease interpretation of the interaction terms, a graph of predicted values was plotted that describes the relationship between PYD, activity involvement and collective activity for boys (Figure 8).

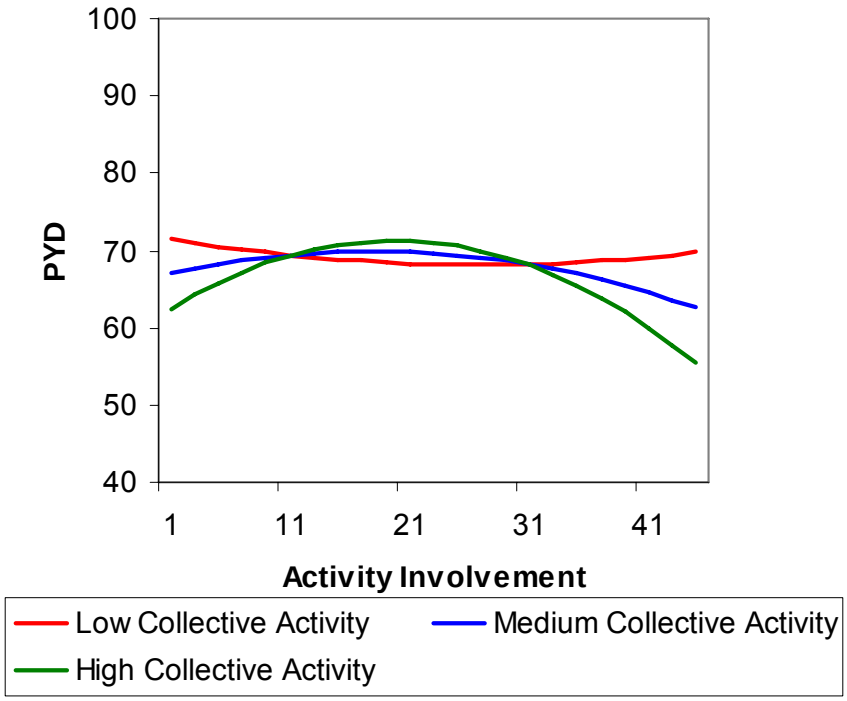

Figure 8. PYD predicted by activity involvement and collective activity for boys

At low levels of activity involvement, boys living in low collective activity neighborhoods scored higher on the measure of PYD as compared to boys living in high collective activity neighborhoods. At mid-level activity involvement, boys from low collective activity neighborhoods exhibited a decrease in PYD scores, whereas boys living in high collective activity neighborhoods exhibited an increase in PYD scores. At very high levels of activity involvement, boys living in low collective activity neighborhoods exhibited an increase in PYD scores, whereas boys living in high collective activity neighborhoods exhibited a decrease in PYD scores. This pattern

clearly contrasts with the results found for the relationship between physical resources and activity involvement for boys.

A different pattern emerged for girls living in high versus low collective activity neighborhoods. As was the case for boys, self-regulation at Wave one positively predicted PYD scores at Wave three for girls, as did the interaction of activity involvement and collective activity. However, for girls the relationship of the interaction was in the opposite direction. Unlike boys, collective activity alone positively predicted PYD for girls (Table 22). When the graph of the predicted values was plotted for girls, the interaction between collective activity and activity involvement was markedly different from the pattern that emerged for the boys (Figure 9). At low levels of activity involvement, girls living in low collective activity neighborhoods scored lower on the measure of PYD as compared to girls living in high collective activity neighborhoods. For girls living in high collective activity neighborhoods, the relationship between activity involvement and PYD remained linear as activity involvement increased. Therefore, at high levels of activity involvement, girls living in high collective activity neighborhoods exhibited reduced, though still high levels of PYD. For girls living in low collective activity neighborhoods, the relationship between activity involvement and PYD appeared to be more complex. At low levels of activity involvement, these girls exhibited low levels of PYD. At mid-level activity involvement, these girls exhibited high levels of PYD. However, at high levels of activity involvement, girls living in low collective activity neighborhoods exhibited a decrease in PYD scores. At high levels of activity involvement, girls living in high collective activity neighborhoods scored high on the measure of PYD, while boys living in low collective activity neighborhoods scored high on the measure of PYD.

Table 22. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between girls' positive youth development (PYD) and activity involvement and neighborhood collective activity, controlling for self-regulation (SOC) and income

	M1	M2	M3	M4
Intercept	72.74***	58.32***	56.02***	54.75***
SOC		2.04***	1.94***	1.92***
Per capita family income		0.84	0.49	1.14
Activity			0.31	0.40
Activity^2			0.00	-0.01
Collective Activity				10.27**
Activity x Collective Activity				-1.00**
Activity^2 x Collective Activity				0.02**
δ_μ^2	16.76	16.47	14.21	11.57
δ_r^2	104.77	92.87	93.81	89.59
AIC	944.97	926.40	939.82	942.41
BIC	956.19	943.22	962.25	973.25
Change in -2LL		22.58***	-9.42	3.42

Note. Values based on sample with data available for PYD (n = 122)

* p < .05. **p < .01. ***p < .001.

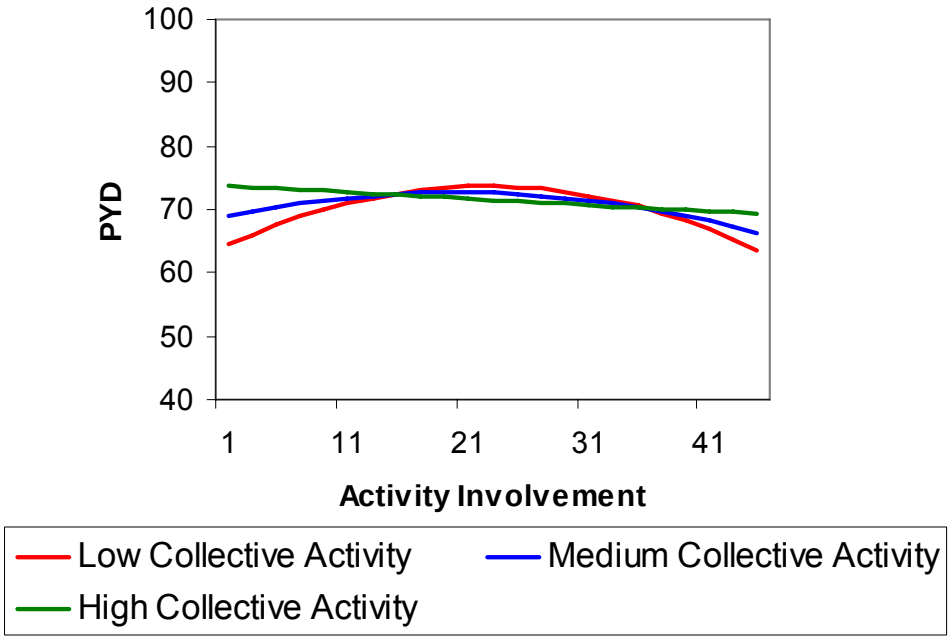

Figure 9. PYD predicted by activity involvement and collective activity for girls

Accessibility and Depression. A significant relationship between activity involvement and depression was only found for boys and only when activity involvement was considered in interaction with neighborhood accessibility. The interaction of activity involvement and accessibility negatively predicted depression. The quadratic interaction term was positively associated with depression. Activity involvement alone was not predictive of depression for boys (Table 23).

Table 23. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between boys' depression and activity involvement and neighborhood accessibility, controlling for self-regulation (SOC) and income

	M1	M2	M3	M4
Intercept	12.10***	9.34	14.66	9.24
SOC		-0.98	-1.05	-1.04
Per capita family income		9.54	6.85	12.16
Activity			-0.34	-0.12
Activity^2			0.01	0.00
Accessibility				4.42
Activity x Accessibility				-1.36*
Activity^2 x Accessibility				0.05*
δ_μ^2	2.33	2.45	1.82	3.06
δ_r^2	67.68	65.86	68.79	63.22
AIC	554.54	547.32	560.79	564.91
BIC	563.92	561.38	579.54	590.69
Change in -2LL		9.22*	-9.48	1.90

Note. Values based on sample with data available for depression (n = 77)

* p < .05. **p < .01. ***p < .001.

To ease interpretation of the interaction terms, a graph of predicted values was plotted that describes the relationship between depression, activity involvement and accessibility for boys (Figure 10).

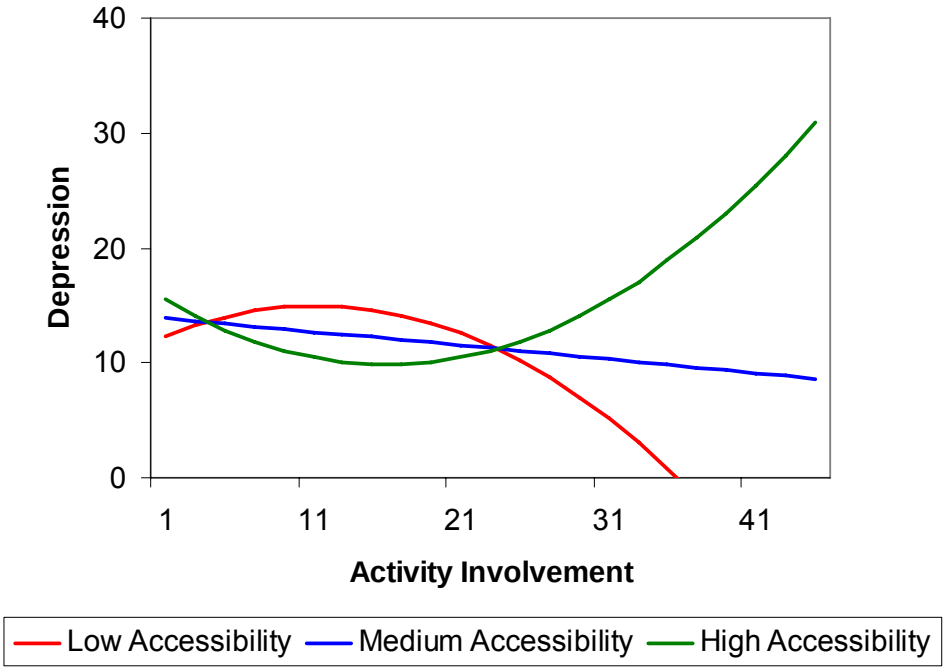

Figure 10. Depression predicted by activity involvement and accessibility for boys

The p-values for this model were lower than those that were found when looking at PYD as the outcome variable. Therefore, caution should be exhibited in interpreting this model. Additionally, there was less variability in the depression scores than there was for the PYD scores.

At low levels of activity involvement, boys living in high accessibility neighborhoods scored higher on the measure of depression than did boys living in low accessibility neighborhoods. At mid-level activity involvement, boys living in low accessibility neighborhoods exhibited an increase in depression scores, whereas boys living in high accessibility neighborhoods exhibited a decrease in depression scores. At the highest levels of activity

involvement, boys living in high accessibility neighborhoods exhibited an increase in depression scores, whereas, boys living in low accessibility neighborhoods exhibited a decrease in depression scores. For boys living in medium accessibility neighborhoods, the relationship between activity involvement and depression was less complex. As activity involvement increased, these boys exhibited a steady decrease in depression scores.

Accessibility and Risk Behavior. The relationship between activity involvement and risk behavior was only found for girls and only when activity involvement was interacted with neighborhood accessibility. Self-regulation also negatively predicted risk behavior for girls. Activity involvement alone was not predictive of risk behavior for girls (Table 24). To ease interpretation of the interaction terms, a graph of predicted values was plotted that describes the relationship between risk behavior, activity involvement and accessibility for girls (Figure 11).

The p-values for this model were lower than those that were found when looking at PYD as the outcome variable. Therefore, caution should be exhibited in interpreting this model. Additionally, there was less variability in the risk behavior scores than there was for the PYD scores.

At low levels of activity involvement, there were minimal differences between the girls' scores on the measure of risk behavior. Data were not available for girls living in low accessibility neighborhoods participating at high levels of activity involvement. At mid-levels of activity involvement, girls living in low accessibility neighborhoods exhibited a decrease in risk behavior. For girls living in high accessibility neighborhoods, high levels of activity involvement were associated with increased risk behavior.

Table 24. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between girls' risk behavior and activity involvement and neighborhood accessibility, controlling for self-regulation (SOC) and income

	M1	M2	M3	M4
Intercept	1.66***	4.72	4.74	5.43
SOC		-0.40**	-0.40*	-0.41*
Per capita family income		-0.43	-0.38	-0.86
Activity			-0.01	-0.03
Activity^2			0.00	0.00
Accessibility				1.51
Activity x Accessibility				-0.23
Activity^2 x Accessibility				0.01*
δ_μ^2	1.67	1.54	1.54	1.18
δ_r^2	8.11	7.85	8.01	8.18
AIC	530.37	525.64	546.05	561.47
BIC	540.83	541.33	566.97	590.24
Change in -2LL		8.72*	-16.40	-9.44

Note. Values based on sample with data available for risk behaviors (n = 101)

* p < .05. **p < .01. ***p < .001.

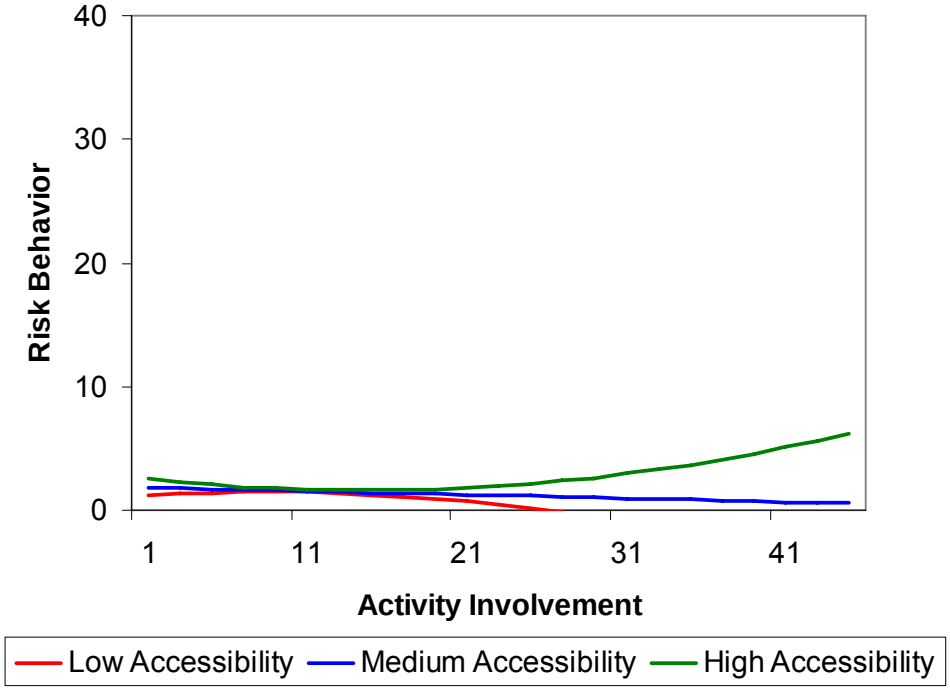

Figure 11. Risk behavior predicted by activity involvement and accessibility for girls

Multi-level Model Analyses: Hypothesis 2

The second hypothesis was: of the youth who live in low asset neighborhoods, those with the most favorable person-level characteristics (defined as self-regulation) would have the most positive developmental outcomes. A two-level model was employed to test this hypothesis, where level one was the child and level two was the census tract. Only data from youth living in low asset neighborhoods were included in the models. A total of 24 models were tested. For each of the three outcome variables (PYD, depression, and risk behavior), eight models were tested, male and female for each of the neighborhood asset dimensions: physical resources, human resources, collective activity, and accessibility. Hierarchic multiple regression was used to assess the relation between the individual level control variable (income) and predictor variables (SOC and activity involvement) but only within low asset neighborhoods. Activity involvement was included in the model, however, the hypothesis did not explicitly include a prediction in relation to activity involvement. The first step was an unconditional model without any predictors. Next, two child level variables were added (SOC and income). Then, linear and quadratic terms for activity involvement were added. Finally, interaction terms for SOC and activity involvement, as well as SOC and activity involvement squared were added. Based on previous findings (i.e., Mahoney, Harris, & Eccles, 2006), the quadratic term was entered to test for potential negative effects of high levels of activity involvement.

In order to identify the subset of youth living in low asset neighborhoods, a median split was created for each of the neighborhood asset categories (boys physical resources median = -0.08, girls physical resources median = -0.59, boys collective activity median = 0.00, girls collective activity

median = 0.00, boys accessibility median = 0.13, girls accessibility median = 0.04, girls human resources median = 0.23). Youth who lived in neighborhoods that scored below the median value for any given asset category were included in the analyses.

Physical Resources and PYD. Self-regulation, activity involvement and activity involvement squared significantly predicted PYD for boys (Table 25). As activity involvement increased, PYD scores increased; and this relationship was strongest for boys who scored highest on the measure of self-regulation.

Table 25. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between PYD for boys in low physical resource neighborhoods and self-regulation (SOC) and activity involvement controlling for income

	M1	M2	M3	M4
Intercept	67.48***	35.78	27.08	48.75
SOC		2.34*	2.68**	-0.02
Per capita family		17.79	11.44	5.91
Activity Involvement			1.59***	0.63
(Activity Involvement)^2			-0.03***	-0.03
SOC x Activity				0.17
SOC x (Activity)^2				0.00
δ_u^2	23.27	23.27	8.93	4.93
δ_r^2	112.22	104.06	87.62	91.86
AIC	354.68	343.36	344.12	356.57
BIC	361.90	354.21	358.57	374.64
Change in -2LL		15.32**	3.24	-8.44

Note. Values based on sample with data available for PYD (n = 45)

* p < .05. **p < .01. ***p < .001.

For girls living in low physical resource neighborhoods, only self-regulation significantly positively predicted PYD (Table 26).

Table 26. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between PYD for girls in low physical resource neighborhoods and self-regulation (SOC) and activity involvement controlling for income

	M1	M2	M3	M4
Intercept	74.12***	57.52***	57.82***	63.68**
SOC		2.78***	2.44***	1.68
Per capita family income		-2.06	-1.39	-2.56
Activity Involvement			-0.04	-0.45
(Activity Involvement)^2			0.00	0.01
SOC x Activity				0.06
SOC x (Activity)^2				0.00
δ_μ^2	11.37	16.93	17.36	16.29
δ_r^2	115.30	87.73	87.44	91.01
AIC	485.66	465.55	478.32	494.61
BIC	494.16	478.31	495.34	515.88
Change in -2LL		24.12**	-8.78	-12.30

Note. Values based on sample with data available for PYD (n = 62)

* p < .05. **p < .01. ***p < .001.

Collective Activity. For boys living in low collective activity neighborhoods, self-regulation significantly positively predicted PYD (Table 27). However, when the SOC by activity involvement interaction terms were included in the model, SOC alone no longer predicted PYD, but activity involvement negatively predicted PYD and activity involvement squared positively predicted PYD. The SOC by activity involvement interaction also significantly predicted PYD (Figure 12). For boys who scored low on SOC or in the mid-range, their PYD scores initially decreased as activity involvement increased; however, at higher levels of activity involvement, boys PYD scores increased. For boys who scored high on activity involvement, they exhibited a linear increase in PYD as activity involvement increased.

Self-regulation, activity involvement and activity involvement squared significantly predicted PYD for girls living in low collective activity neighborhoods (Table 28). As activity involvement increased, PYD scores increased; and this relationship was strongest for girls who scored highest on the measure of self-regulation.

Table 27. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between PYD for boys in low collective activity neighborhoods and self-regulation (SOC) and activity involvement controlling for income

	M1	M2	M3	M4
Intercept	72.48***	41.27	51.89*	131.12**
SOC		3.04**	2.45**	-5.79
Per capita family income		12.28	9.06	-3.72
Activity Involvement			-0.82	-8.52*
(Activity Involvement)^2			0.03†	0.19*
SOC x Activity				0.95*
SOC x (Activity)^2				-0.02
δ_{μ}^2	8.43	8.20	7.81	18.55
δ_r^2	116.89	92.10	82.77	62.71
AIC	222.05	207.74	220.04	229.10
BIC	223.42	211.84	230.98	242.78
Change in -2LL		18.32**	-2.30	-5.06

Note. Values based on sample with data available for PYD (n = 29)

* p < .05. **p < .01. ***p < .001.

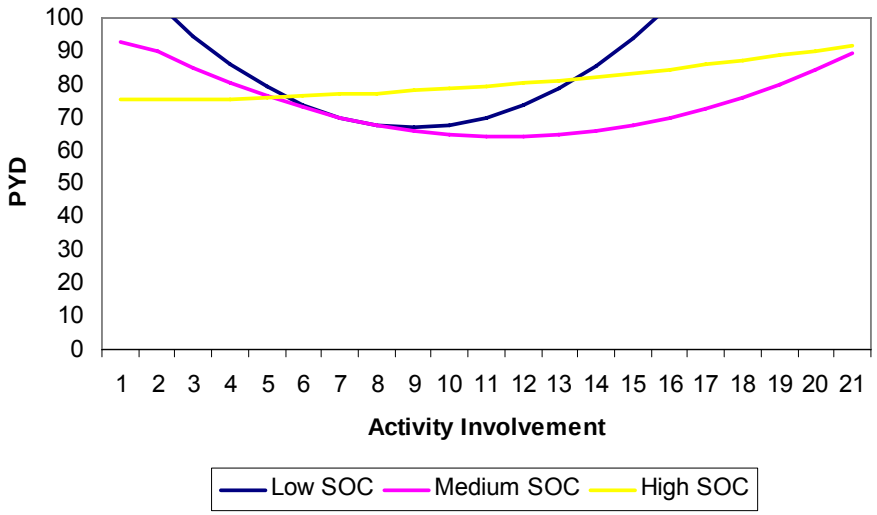

Figure 12. PYD predicted by activity involvement, income and self-regulation (SOC) for boys living in low collective activity neighborhoods

Table 28. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between PYD for girls in low collective activity neighborhoods and self-regulation (SOC) and activity involvement controlling for income

	M1	M2	M3	M4
Intercept	72.93***	54.74**	44.40*	48.06
SOC		2.53*	2.77*	1.98
Per capita family income		1.24	3.49	5.66
Activity Involvement			0.92*	0.79
(Activity Involvement)^2			-0.02*	-0.03
SOC x Activity				0.02
SOC x (Activity)^2				0.00
δ_μ^2	19.31	7.84	2.72	5.49
δ_r^2	88.20	90.99	89.05	88.79
AIC	238.41	227.40	236.03	250.24
BIC	244.15	236.01	247.50	264.58
Change in -2LL		15.02**	-4.64	-10.2

Note. Values based on sample with data available for PYD (n = 31)

* p < .05. **p < .01. ***p < .001.

For boys living in low collective activity neighborhoods, self-regulation significantly negatively predicted depression (Table 29). When the SOC by activity involvement interaction terms were added to the model, activity involvement positively predicted depression and activity involvement squared

negatively predicted depression. However, the SOC by activity involvement interaction negatively predicted depression (Figure 13). Boys who scored highest on the measure of self-regulation initially had decreased scores on depression as activity involvement increased. At very high levels of activity involvement, high self-regulators had increased depression scores. The opposite pattern emerged for boys who scored low or average on the self-regulation measure. For these boys, initially as activity involvement increased, depression scores increased. At very high levels of activity involvement depression scores decreased.

A very similar pattern emerged for these boys for the risk behavior outcome. Self-regulation and per capita family income also significantly negatively predicted risk behavior (Table 30). When the SOC by activity involvement interaction terms were added to the model, activity involvement positively predicted risk behavior. However, the SOC by activity involvement interaction negatively predicted risk behavior (Figure 14). For boys who scored high on the measure of self-regulation, risk behavior decreased as activity involvement increased. Additional data is needed to draw conclusions regarding the boys who scored low and average on self-regulation.

Table 29. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between depression for boys in low collective activity neighborhoods and self-regulation (SOC) and activity involvement controlling for income

	M1	M2	M3	M4
Intercept	9.99***	19.14	23.27	-36.53
SOC		-1.31*	-1.40*	4.98
Per capita family income		-0.88	-3.06	4.96
Activity Involvement			-0.08	6.36*
(Activity Involvement)^2			0.00	-0.15*
SOC x Activity				-0.80*
SOC x (Activity)^2				0.02
δ_μ^2	2.58	3.77	5.13	9.21
δ_r^2	35.57	30.88	31.04	23.12
AIC	187.79	179.29	190.93	198.83
BIC	193.11	187.28	201.59	212.15
Change in -2LL		12.5**	-7.66	-3.88

Note. Values based on sample with data available for depression (n = 28)

* p < .05. **p < .01. ***p < .001.

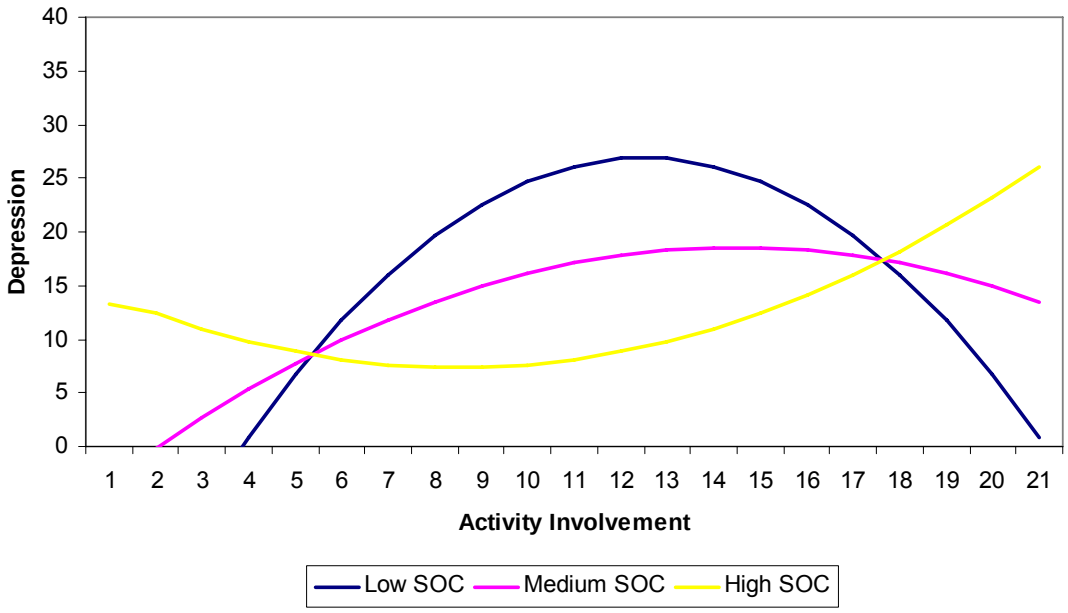

Figure 13. Depression predicted by activity involvement, income and Self-regulation (SOC) for boys living in low collective activity neighborhoods

Table 30. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between risk behavior for boys in low collective activity neighborhoods and self-regulation (SOC) and activity involvement controlling for income

	M1	M2	M3	M4
Intercept	3.07**	33.99**	30.33*	-15.78
SOC		-1.06*	-1.00*	3.95
Per capita family income		-25.69*	-23.81*	-17.37
Activity Involvement			0.14	5.07*
(Activity Involvement)^2			0.00	-0.12
SOC x Activity				-0.61*
SOC x (Activity)^2				0.01
δ_μ^2	0.38	0.94	0.99	1.17
δ_r^2	25.99	18.44	19.62	16.22
AIC	170.82	153.16	166.28	175.20
BIC	176.00	157.05	172.76	184.27
Change in -2LL		11.66**	-5.12	-4.96

Note. Values based on sample with data available for risk behavior (n = 27)

* p < .05. **p < .01. ***p < .001.

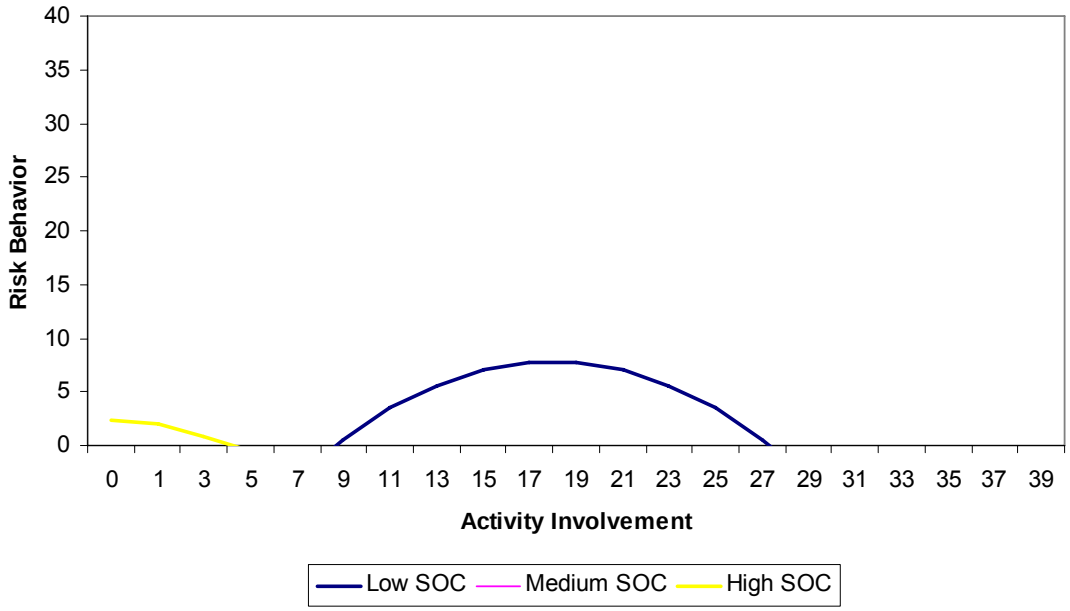

Figure 14. Risk behavior predicted by activity involvement, income and Self-regulation (SOC) for boys living in low collective activity neighborhoods

Accessibility. For boys living in low accessibility neighborhoods, self-regulation and per capita family income significantly positively predicted PYD (Table 31). For girls living in low accessibility neighborhoods, only self-regulation significantly positively predicted PYD (Table 32).

Table 31. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between PYD for boys in low accessibility neighborhoods and self-regulation (SOC) and activity involvement controlling for income

	M1	M2	M3	M4
Intercept	68.61***	-6.84	-20.85	-21.29
SOC		3.62***	4.16***	5.22*
Per capita family income		54.54	59.07*	50.93
Activity Involvement			0.93	4.02
(Activity Involvement)^2			-0.02	-0.13
SOC x Activity				-0.45
SOC x (Activity)^2				0.02
δ_μ^2	62.54	46.77	62.17	58.21
δ_r^2	129.72	94.72	84.47	80.10
AIC	285.85	266.85	275.92	286.72
BIC	292.07	276.18	288.37	302.27
Change in -2LL		22.98**	-5.06	-6.8

Note. Values based on sample with data available for PYD (n = 35)

* p < .05. **p < .01. ***p < .001.

Table 32. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between PYD for girls in low accessibility neighborhoods and self-regulation (SOC) and activity involvement controlling for income

	M1	M2	M3	M4
Intercept	73.65***	45.01**	44.60**	48.00**
SOC		2.69***	2.56***	2.04
Per capita family income		11.14	11.05	11.07
Activity Involvement			0.08	0.33
(Activity Involvement)^2			0.00	-0.02
SOC x Activity				-0.04
SOC x (Activity)^2				0.00
δ_μ^2	16.97	11.16	8.79	6.76
δ_r^2	110.24	92.76	98.00	101.03
AIC	453.66	435.60	449.51	464.71
BIC	461.91	447.96	465.99	485.32
Change in -2LL		22.06**	-9.9	-11.22

Note. Values based on sample with data available for PYD (n = 58)

* p < .05. **p < .01. ***p < .001.

Human Resources. For girls living in low human resource neighborhoods, self-regulation significantly negatively predicted risk behavior (Table 33).

Table 33. Parameter estimates, p values, and associated goodness-of-fit statistics for a nested taxonomy of regression models that describe the relationship between risk behavior for girls in low human resource neighborhoods and self-regulation (SOC) and activity involvement controlling for income

	M1	M2	M3	M4
Intercept	1.94***	5.13	5.09	6.13
SOC		-0.51**	-0.53**	-0.65**
Per capita family income		0.12	-0.26	-0.36
Activity Involvement			0.08	0.04
(Activity Involvement)^2			0.00	0.00
SOC x Activity				0.00
SOC x (Activity)^2				0.00
δ_μ^2	2.59	3.35	3.66	3.54
δ_r^2	4.89	3.82	3.76	3.97
AIC	243.94	236.69	255.44	277.57
BIC	251.51	248.04	270.58	296.49
Change in -2LL		11.24**	-14.74	-18.12

Note. Values based on sample with data available for risk behavior (n = 49)

* p < .05. **p < .01. ***p < .001.

Summary of Findings

Table 34 summarizes the findings for the first hypothesis regarding the relationship between observed neighborhood ecological assets on the positive and negative developmental outcome variables for boys and girls. Three of the

four neighborhood asset variables significantly contributed to predicting developmental outcomes. Only human resources did not significantly predict developmental outcomes either alone or in interaction with activity involvement. The neighborhood ecological assets and activity involvement predicted both positive and negative developmental outcomes for boys and girls. Interestingly, physical resources and collective activity, along with activity involvement, predicted PYD for both boys and girls. However, the nature of the interaction between neighborhood assets and activity involvement differed for boys and girls. Neighborhood accessibility, together with activity involvement, was important in predicting negative behavioral outcomes (depression for boys and risk behavior for girls).

Table 34. Summary matrix of significant findings from multiple outcome regression analyses for hypothesis 1

	Physical Resources	Accessibility	Collective Activity	Human Resources
PYD				
Girls	X		X	
Boys	X		X	
Depression				
Girls				
Boys		X		
Risk Behavior				
Girls		X		
Boys				

Table 35 summarizes the findings for the second hypothesis regarding the relationship between self-regulation, activity involvement and positive and negative developmental outcomes for boys and girls living in low asset neighborhoods.

Table 35. Summary matrix of significant findings from multiple outcome regression analyses for hypothesis 2

	Physical Resources	Accessibility	Collective Activity	Human Resources
PYD				
Girls	SOC	SOC	SOC_1	
Boys	SOC_1	SOC_2	SOC_3	
Depression				
Girls				
Boys			SOC_3	
Risk Behavior				
Girls				SOC
Boys			$SOC_{2, 3}$	

Note. $_1$ Activity and activity^2 also significantly predicted the outcome at $p < .05$.

$_2$ Per capita family income also significantly predicted the outcome at $p < .05$.

$_3$ SOC by activity involvement interaction predicted the outcome at $p < .05$.

Higher levels of self-regulation positively predicted PYD for both boys and girls in low physical resource, low accessibility, and low collective activity

neighborhoods. Higher levels of self-regulation protected against risk behavior for girls living in low human resource neighborhoods. Self-regulation did not significantly predict PYD for either boys or girls in low human resource neighborhoods. The self-regulation by activity involvement interaction was significant for boys living in low collective activity neighborhoods for all of the outcome variables. Higher levels of self-regulation protected against depression and risk behavior and promoted PYD for boys living in low collective activity neighborhoods. Additionally, activity involvement and the quadratic term for activity involvement significantly predicted PYD for boys living in low physical resource neighborhoods and girls living in low collective activity neighborhoods.

When the findings for the second hypothesis were considered together with the findings for the first hypothesis, a rich picture emerged that helps to explain the relationship between neighborhood assets, activity involvement, and gender. Results for the first hypothesis indicated that self-regulation, physical resources, the interaction between activity involvement and physical resources, and the interaction between the quadratic term for activity involvement and physical resources significantly predicted PYD for boys. However, neither activity involvement nor the quadratic term for activity involvement was significant alone. However, when this model was disaggregated and these relationships were examined only for boys living in low physical resource neighborhoods, both activity involvement and the quadratic term for activity involvement reached significance.

A similar pattern emerged for girls living in low collective activity neighborhoods. Results for the first hypothesis indicated that self-regulation, collective activity, the interaction between activity involvement and collective

activity, and the interaction between the quadratic term for activity involvement and collective activity significantly predicted PYD for girls. However, activity involvement alone and the quadratic term for activity involvement did not reach significance. However, when this model was disaggregated and these relationships were examined only for girls living in low collective activity neighborhoods, both activity involvement and the quadratic term for activity involvement reached significance. Therefore, being involved in activities seemed to have the greatest impact on PYD for boys living in low physical resource neighborhoods and girls living in low collective activity neighborhoods.

The next chapter provides a detailed discussion of the results.

CHAPTER 5

DISCUSSION

This chapter begins with a discussion of the findings in relation to the hypotheses stated in Chapter Two. This is followed by a discussion of the general challenges and limitations of studying adolescent activity involvement and neighborhood factors. The positive youth development perspective and the over-scheduling hypothesis are then presented as competing perspectives and the results of this study are discussed in relation to these theoretical constructs. Next, the key findings of the current study are discussed in relation to the existing literature. Specific limitations of the current study are then presented as well as suggestions for future studies. The chapter concludes with a brief discussion of policy implications.

Overview

The results of this study revealed a rather complex interplay between individual level factors, including self-regulation and activity involvement, and neighborhood characteristics. Consistent with a Bioecological approach, the findings of this study affirm the need to consider multiple contextual influences on development including the impact that distal factors can have on the individual. The key finding from this study was that neighborhood variables moderate the effects of activity involvement in rather complex ways. The first hypothesis guiding this study was that the positive impact of participating in extracurricular activities would vary inversely with the asset level of the neighborhood. Results indicated some support for this hypothesis; however, as stated, the hypothesis did not account for the level of complexity that was

actually found in the empirical analyses. For example, the hypothesis assumed a linear relationship between activity involvement and developmental outcomes. However, the relationship was typically both linear and quadratic providing a much more complex and nuanced relationship between activities, neighborhood factors, and developmental outcomes.

Additionally, the hypothesis was written with the assumption that neighborhoods would score consistently high or low on all of the dimensions of neighborhood assets (physical resources, human resources, collective activity, and accessibility). Again, a more complex picture emerged in which within neighborhood variation was the norm rather than the exception. The results seemed to indicate that the mere "pile-up" of contextual assets does not necessarily lead to better developmental outcomes. However, what may be important is the particular combination of assets that are most salient for youth in specific neighborhoods (Lerner, 2005). Further research will need to explore what combinations of contextual assets provide the most supportive environments for optimal development. This cannot be considered in isolation, but must also take into account the individual's contribution to this bi-directional person-environment interaction.

The second hypothesis was not nearly as complex as the first, and the results indicated that for youth living in low asset neighborhoods, those who exhibit the highest levels of self-regulation also exhibit the most positive developmental outcomes. The out-of-school context provides just one of many settings in which youth outcomes can be influenced. The results of this study support the general finding in the out-of-school activity literature that the after-school context interacts with multiple contexts influencing adolescent

development as well as with the individual characteristics, preferences, and skills that youth possess (Fauth, Roth, & Brooks-Gunn, 2007).

The next section will address the challenges and general limitations associated with research on neighborhood effects and adolescent activity involvement.

Challenges and General Limitations

Measuring and observing neighborhood effects are a challenging yet important endeavor. The two most common approaches to measuring neighborhood effects are subjective measures based on residents' perceptions of their neighborhood and objective measures of neighborhood resources. Each approach has its own set of advantages, but both approaches have been criticized for their inability to accurately capture neighborhood resources. Subjective measures are tainted by individual perceptions and do not necessarily reflect the actual resources available in a neighborhood. Objective measures fail to capture the degree to which any given resource is actually valued by those for whom it is intended to serve (Leventhal & Brooks-Gunn, 2000).

The current study utilized an objective approach to measuring neighborhood assets and is therefore subject to the criticisms that accompany the use of such measures. However, despite these limitations, the current study's use of census data and internet resources to catalogue neighborhood assets has two advantages: (1) it provides consistent information on available resources for individuals living in the same neighborhood; (2) it avoids confounding the availability of neighborhood resources with the average SES of the neighborhood. In addition, by using the SOC model to account for individual functioning *and* objective measures of neighborhood resources, this

study tapped into both objective and perceived measures of neighborhood resources. Selection in the SOC model refers to the individual's ability to select from a range of developmental supports and opportunities available to them within their ecology or neighborhood that will help him or her to achieve individual goals. The objective measures of neighborhood resources measure the degree to which communities provide meaningful opportunities for youth to optimize their selected goals (Benson, 2007). This interplay between individual functioning and neighborhood resources may account for the differences observed between youth living in high and low resource neighborhoods.

Few studies to date distinguish between the resources available in a neighborhood and the average neighborhood SES. In other words, studies describe neighborhoods as poor or rich based on the average income of the residents residing in the neighborhood, not based on objective measures of resources available in the neighborhood. This leads to the assumption that neighborhoods with a predominance of wealthy inhabitants must also have an abundance of neighborhood resources and conversely that neighborhoods with a predominance of poor residents must lack neighborhood resources. However, Allard, Tolman, and Rosen (2003) found that neighborhood SES and the availability of resources are independent. In fact, contrary to what one might expect, access to neighborhood resources may be highest for residents of poor neighborhoods. Similarly, Sampson, Morenoff, and Earls (1999) concluded that neighborhood disadvantage or advantage must be conceptualized based on more than simply poverty rates. The current study similarly found support for the independence of neighborhood resources and family SES. In general, when the data for boys and girls was combined, the neighborhood asset variables were not correlated with family SES. Since

limited research is available that distinguishes between the two, the results of this study are limited to comparison with other studies that defined neighborhood wealth based on the income of the inhabitants. Therefore, caution should be taken when comparing the results of this study with previous findings based on neighborhood SES. Additional studies are needed that can disentangle the relationship between SES, neighborhood resources, and individual outcomes.

The role and importance of neighborhood characteristics has been demonstrated by several studies that have explored their influence on individual outcomes (e.g., Leventhal & Brooks-Gunn, 2000). However, despite promising findings, neighborhood effects are consistently difficult to detect and account for the smallest amount of variance in the outcomes of interest. Most of the variance in outcomes can be explained at the individual level leaving little between-neighborhood variance to be explained (Fauth, Roth, & Brooks-Gunn, 2007). Despite this challenge, the findings from the current study suggest that neighborhood-level variation does contribute to the explanation of the association between activity involvement and youth outcomes. This adds to the growing body of evidence that suggests the impact of adolescent activity involvement on developmental outcomes needs to be considered in terms of the multiple contexts (including the neighborhood) in which youth are embedded.

In addition to the challenges associated with measuring and detecting neighborhood effects, there are additional challenges associated with measuring and cataloguing adolescent activity involvement. Measuring adolescent activity involvement is akin to trying to hit a moving target. Youth are typically involved in a cacophony of activities (Theokas, Lerner, Phelps, &

Lerner, 2006). It is difficult to accurately capture the types of activities adolescents engage in and the amount of time they spend in these activities. A self-report survey approach was used in the current study and therefore lacks the detail needed to understand the more nuanced effects of activity involvement. An additional challenge of this self-report survey approach is the inability to distinguish the quality of various activities. The self-report survey approach is commonly used in larger, national datasets that provide the diversity needed to detect neighborhood effects but lack the detail needed to understand differences in activity quality.

In addition to these measurement challenges, there is not yet a clear consensus regarding the optimal amount of time that youth should spend engaged in extracurricular activities (Mahoney, Harris, & Eccles, 2006). The following section outlines the two leading theoretical perspectives that relate adolescent developmental outcomes and activity involvement.

The PYD Perspective and the Over-Scheduling Hypothesis

The positive youth development (PYD) perspective draws on developmental systems theories to understand the relationship between activity involvement and ecological contexts. According to this perspective, activities provide an important context for youth development by providing structured and challenging activities in safe environments. Proponents of this perspective promote increased opportunities for youth to engage in activities due to the belief that, in general, more participation in activities results in better developmental outcomes. Alternatively, the over-scheduling hypothesis warns against the potential negative effects of over-involvement in activities. This hypothesis is based on the idea that participation in activities is extrinsically motivated; the extensive time commitment required to participate in activities

erodes time spent in traditional family activities (such as shared meals); and due to the combination of parental pressures to achieve and heavy time commitments that erode family functioning, youth are at greater risk of developing adjustment problems and poor relationships with parents (Mahoney, Harris, & Eccles, 2006).

In a review of the literature on adolescent activity involvement, Mahoney, Harris, and Eccles (2006) concluded that evidence consistently points to the benefits associated with participating in organized activities. Most studies demonstrated that more participation in organized activities is almost always better than little or no participation. These results are typically highlighted by proponents of the PYD perspective. However, a few studies did demonstrate a point of diminishing returns at very high levels of activity involvement (Mahoney, Harris, & Eccles, 2006). For example, Luthar and colleagues (Luthar, Shoum, & Brown, 2006) found some support for the over-scheduling hypothesis in a sample of predominantly white, affluent youth. A subset of girls who were both highly engaged in activities and perceived their parents as highly critical exhibited poorer adjustment. This is consistent with the finding from the current study of a significant quadratic interaction between neighborhood accessibility and activity involvement for risk behavior in girls. Girls living in high accessibility neighborhoods who reported high levels of activity involvement also reported elevated levels of risk behavior. These results are typically highlighted by proponents of the over-scheduling hypothesis. However, it is important to recognize that this hypothesis has only been applied to and studied in the context of affluent families. The focus on affluent youth may be due, in part, to a lack of data for low SES youth who participate in high levels of activity involvement. This lack of data was also a

concern in the present study as there were fewer data points at the upper extremes of activity involvement for youth living in low asset neighborhoods.

Despite mixed findings, Mahoney, Harris, and Eccles (2006) conclude that the evidence to date provides more support for the positive youth development perspective than for the over-scheduling hypothesis. The strongest support for this conclusion is based on the finding that despite significant quadratic trends for activity involvement, youth participating at the highest levels still score better than or as well as youth who do not participate in any activities on measures of well-being. The results of the current study paint a much more complex picture that at times lends support to the over-scheduling hypothesis while also lending support to the PYD perspective. Neither perspective wins supremacy; but rather, gender, self-regulation, and neighborhood context interact to generate a complex and nuanced relationship between activity involvement and developmental outcomes.

General Findings

The pattern of results indicates that the relationship between activity involvement, developmental outcomes, and ecological context is complex and differs for early adolescent boys and girls.

Bioecological theory predicts that the developmental impact of proximal processes (defined as activity involvement in the current study) differs depending upon the environment in which youth are embedded and the type of developmental outcome. In other words, neighborhood influences were found to be primarily indirect and to operate through the more proximal process of activity involvement (Leventhal & Brooks-Gunn, 2000). For youth living in low asset neighborhoods, Bioecological Theory predicts that proximal processes would have the greatest impact on outcomes of dysfunction

(depression, risk behavior). Alternatively, proximal processes are posited to have the greatest impact on outcomes of competence (PYD) for youth living in high asset neighborhoods (Bronfenbrenner & Morris, 2006).

Results from the current study indicated that youth living in lower asset neighborhoods did seem to benefit more than their counterparts living in high asset neighborhoods from participation in activities when looking at outcomes of dysfunction. Boys who live in neighborhoods with limited accessibility, characterized by neighborhood instability and an unfavorable ratio of adults to children, exhibited decreased depressive symptoms at low and high levels of activity involvement. Similar to findings by Barber, Eccles, and Stone (2001), activity involvement alone did not predict depression in boys; however, the interaction of activity involvement and neighborhood accessibility did predict depression. Additionally, those youth who were better self-regulators exhibited the lowest levels of depression. Girls who live in neighborhoods with limited accessibility exhibited the lowest levels of risk behavior. Consistent with findings from Fauth, Roth, and Brooks-Gunn (2007), the interaction of activities and neighborhood accessibility significantly predicted risk behavior for girls; however, risk behavior scores were similar for all girls in low accessibility neighborhoods regardless of activity participation.

The favorable relationship between outcomes of dysfunction and activity involvement for youth living in low asset neighborhoods stood in contrast to the results for youth living in high asset neighborhoods. While neighborhood physical resources and collective activity were most predictive of PYD for both boys and girls, neighborhood accessibility was most predictive of outcomes of dysfunction (risk behavior for girls and depression for boys). This is consistent with Leventhal, Dupere, and Brooks-Gunn's (In press)

finding that the specific aspect of neighborhood SES that effects development varies depending upon the outcome measured. Girls living in high accessibility neighborhoods exhibited a slight decline in risk behavior as activity involvement increased to moderate levels, followed by an increase in risk behavior at higher levels of activity involvement. This is consistent with findings from previous studies that found that in high asset neighborhoods, higher levels of activity involvement were associated with higher rates of substance use (Fauth, Roth, & Brooks-Gunn, 2007; Luthar, Shoum, & Brown, 2006) and problem behaviors (Gage, Overpeck, Nansel, & Kogan, 2005). One possible explanation for this finding is that the availability of resources in these neighborhoods provides opportunities for unstructured activities, thereby providing more opportunities for substance use and other risk behaviors (Fauth, Roth, & Brooks-Gunn, 2007).

The effect of activity involvement on outcomes of competence for youth living in high asset neighborhoods was less clear. For example, boys who live in neighborhoods with substantial physical resources exhibited enhanced well-being when activity involvement was either low or high and worst when activity involvement was moderate. However, in neighborhoods with high levels of collective activity, represented by the presence of a neighborhood group or youth coalition, the opposite trend emerged, whereby boys who were moderately engaged in activities exhibited the most positive outcomes. Once again, the opposite trend was found for girls living in high asset neighborhoods. Girls living in high physical resource neighborhoods exhibited the most favorable PYD scores when they were engaged in moderate levels of activity involvement. However, girls living in high collective activity neighborhoods exhibited a linear decline in PYD as activity involvement

increased. Leventhal and Brooks-Gunn (2000) suggest that the beneficial effects of living in a high SES neighborhood are more pronounced for boys than for girls. Findings from this study suggest that this relationship is dependant upon the types of resources available in the neighborhood. In some cases, youth who live in lower asset neighborhoods fare better and in other cases, the reverse is true. The results do support previous findings that suggest that living in more affluent neighborhoods is not necessarily equated with more positive developmental outcomes (Luthar & Latendresse, 2005a).

This study also attempted to address whether activity involvement differentially impacted youth resulting in a widening or a closing in the gap between advantaged and disadvantaged youth. In other words, does participation in activities serve as a protective factor for at-risk youth? In some instances, the results do suggest that activity involvement may act as a protective factor for youth living in low asset neighborhoods, potentially closing the gap.

Activity involvement seemed to have the greatest influence on both boys and girls living in neighborhoods with limited physical resources. Boys living in low physical resource neighborhoods, that lack things such as a library, youth facilities, and recreation opportunities exhibited enhanced PYD at moderate levels of activity involvement. This suggests a possible link between the availability of activities and neighborhood characteristics (Leventhal, Dupere, & Brooks-Gunn, In press). Boys living in low physical resource neighborhoods may have a difficult time finding organized activities; however, when they are able to locate this resource, they do incur positive developmental benefits. However, at very high levels of activity involvement, PYD did decrease, lending partial support to the over-scheduling hypothesis

(or to a ceiling effect). Girls who live in neighborhoods with limited physical resources exhibited a linear increase in PYD as activity involvement increased, lending support to the positive youth development perspective.

Previous studies have tended to ignore the meaning that activities have for youth living in different social contexts and simply assume universal positive outcomes (Guest & Schneider, 2003). The significant activity-by-neighborhood interactions found in the current study demonstrate that this assumption is false. One possible explanation for this difference could be that even if youth are participating in the same activities, outcomes may vary due to differences in how that involvement is perceived by other members of these distinctly different communities. For example, in poor communities and communities where few students pursue higher education, athletes tend to be seen as good students. However, in wealthier communities and communities where most students pursue higher education, students involved in non-sports extracurricular activities tend to be seen as good students (Guest & Schneider, 2003). The gender differences observed in the current study may also be attributed to differences in how boys and girls experience extracurricular activities, even if they are involved in the same types of activities.

Similarly, the assumption that living in a high asset neighborhood automatically confers developmental advantage is not necessarily true. Luthar and Latendresse (2005a) found that contrary to stereotypes, youth at the extremes of SES tend to be more similar than different. In fact, affluent youth report significantly higher levels of substance use and depression than inner-city youth (Luthar, 2003). Evolutionary psychologists hypothesize that the poor developmental outcomes observed in affluent youth may in part be due to feelings of isolation and friendlessness. The physical characteristics of wealthy

communities may in fact do more to inhibit social connectedness than the more dense and stressful environments of the inner-city (Luthar, 2003).

Adding to this complexity is research that demonstrates that the availability of resources and the perception of the availability of resources may not be consistent. In a study of 1,803 adults, Giles-Corti and Donovan (2002) used both objective and subjective measures of access to supportive physical environments and found that participants living in low SES neighborhoods actually had greater access to resources than their high SES counterparts but they were less likely to utilize these resources. Similar to the results of the current study, this study demonstrates the complex relationship between the availability of neighborhood resources and activity involvement.

Boys and girls are affected differently by both the amount of time spent in activities and the types of neighborhood supports available.

Results of the current study indicated that high levels of activity involvement were associated with a decrease in PYD, particularly for boys living in low physical resource neighborhoods and girls living in high physical resource neighborhoods. This pattern was reversed when looking at the interaction of activity involvement and neighborhood collective activity. High levels of activity involvement were associated with a decrease in PYD for boys living in high collective activity neighborhoods and girls living in low collective activity neighborhoods. Alternatively, high levels of activity involvement were associated with an increase in depressive symptoms for boys living in high accessibility neighborhoods and a decrease in depressive symptoms for boys living in low accessibility neighborhoods. Similarly, high levels of activity involvement were associated with an increase in risk behavior for girls living in

high accessibility neighborhoods and a decrease in risk behavior for girls living in low accessibility neighborhoods. The finding of gender differences is not uncommon in neighborhood research with studies showing that neighborhood SES may have more pronounced effects on boys' achievement than on girls' achievement (Leventhal & Brooks-Gunn, 2000).

These differences between boys and girls could potentially be attributed to differences in the types of activities in which they tend to engage (Sharp, Coatsworth, Darling, Cumsille, & Ranieri, 2007). Girls tend to report more socializing activities (i.e., spending time with friends), instrumental activities (i.e., studying, paid work), arts and literary activities (i.e., reading, writing), while boys tend to report more sports/physical activities (i.e., football, exercising, fishing) (Luthar, Shoum, & Brown, 2006; Sharp, Coatsworth, Darling, Cumsille, & Ranieri, 2007). Specific types of activities have also been associated with different developmental outcomes (Eccles & Barber, 1999; Larson, Dworkin, & Gillman, 2001). For example, for girls, time spent in academically-oriented extracurricular activities has been associated with higher problem behaviors (particularly delinquency and substance use); and time spent in civic-oriented extracurricular activities has been associated with decreases in scores on internalizing behaviors (Luthar, Shoum, & Brown, 2006). For boys, activity involvement was only associated with positive and not negative behavioral outcomes. Time spent in sports and arts-oriented extracurricular activities positively predicted grades; however, time spent in academically-oriented extracurricular activities negatively predicted grades. Arts involvement also positively predicted classroom competence for boys (Luthar, Shoum, & Brown, 2006).

The current study does not differentiate among the various types of activities in which the youth engaged. It is possible that differences in activities selected by boys and girls could explain the differences in outcomes. In addition, it may be that youth living in different neighborhoods have access to different types of activities, and this in combination with gender-based selection biases could account for the observed differences in outcomes. Future studies will need to explore these possible explanations.

The significant interaction between activity involvement and self-regulation was persistent and consistent for boys living in low collective activity neighborhoods. These neighborhoods lack strong collective efficacy as indicated by the dearth of community organizations, neighborhood groups, and youth coalitions. Yet, it is in these neighborhoods, where developmental success is achieved for those boys who are better at self-regulating and are able to select positive goals and optimize the limited resources available to them (i.e., by participating in activities). Developmental asset theory posits that even when opportunities are limited, adolescents will strive to find and/or create optimizing settings (Benson, 2007). The findings indicate that, particularly for boys, finding a good fit between the individual and the environment supports the positive development of youth.

Limitations

Despite the interesting results of this study, there are several limitations that warrant consideration. Activity involvement was only measured at one time point in this study. Ideally, activity involvement would have been measured consistently at all time points which would have enabled the modeling of activity involvement as a time-varying predictor. This would have enabled the prediction of change over time in relation to the outcome

variables. Additionally, more detailed measures of activity involvement in terms of type of activity and time spent in activities would strengthen the findings in the current study. Measurement on the quality of these activities was also missing.

The method used for measuring neighborhood assets also presents potential limitations. The threat of omitted variable bias at any level, and particularly at the neighborhood level, is a concern in the present study (Leventhal & Brooks-Gunn, 2000). Ideally, both actual and perceived neighborhood assets would be measured. This study only utilized objective measures of neighborhood assets and there was no way to determine whether residents actually perceived these neighborhood resources as present and useful. Neighborhood resources would be more accurately captured by including both objective measures of the neighborhood, as well as resident perceptions of the neighborhood. To avoid confounding variables, residents who are otherwise non-participants in the study should provide the data for subjective neighborhood resources. Despite the lack of this type of data in the current study, the SOC model used to measure youth self-regulation addresses individual's ability to actualize the potential present in their environment and may therefore be considered as a type of proxy for perceived neighborhood assets. However, even the most accurate measures of neighborhood assets cannot account for the possible confounding effects of neighborhood selection. Family residence in a neighborhood is not random but rather families choose where they want to live (Leventhal & Brooks-Gunn, 2000).

In addition it should be noted that this study used secondary data analysis techniques. This limits interpretation of the findings since the author is

not personally familiar with the neighborhoods studied. The neighborhoods included in the study sample were selected based on the availability of neighborhood resource data (Theokas & Lerner, 2006). Different neighborhoods would have been selected if this study utilized primary data sources. In particular, neighborhoods would have been selected to maximize between neighborhood variation in asset variables. The data used in this study are also subject to diminished statistical power due to high rates of attrition and therefore, small sample sizes. The number of youth living in any neighborhood ranges from 1 to 23 which may not provide sufficient clustering at the neighborhood level (Leventhal & Brooks-Gunn, 2000).

Despite these statistical limitations most of the curvilinear relationships between activity involvement and the outcome variables were significant. However, these findings may be driven by outliers. A larger sample size that includes more participants at the upper extremes of activity involvement would clarify these results. Despite this limitation, findings that indicate potential negative effects of high levels of activity involvement should not be ignored. Although, others (i.e., Mahoney, Harris, & Eccles, 2006) have argued that the benefits of encouraging greater activity involvement outweigh the potential costs of high levels of activity involvement, this may depend on the type of neighborhood context in which youth are embedded.

One possible alternative explanation of the results is that the relationship between activity involvement and developmental outcomes is not complex and nuanced, but rather, the data contains a high level of noise and the results are simply random. Additional studies are needed that examine whether neighborhood resources moderate the effects of activity involvement on both positive and negative developmental outcomes.

Future Directions

Future studies that capture both the details of adolescent activity involvement in terms of type, quality, and time, as well as variation in neighborhood resources would strengthen the literature in this field. Additional research needs to be conducted that continues to disaggregate the relationship between family SES and neighborhood assets. Ideally, future studies should include between-neighborhood variation in assets and within-neighborhood variation in family SES in order to isolate the effects of activity involvement on youth outcomes.

The design of the current study does not include sufficient data and analyses to determine the direction of causality. Activity involvement may cause positive youth development, or alternatively, youth who are already exhibiting positive development may be more involved in activities. In order to determine the direction of this relationship, both activity involvement and the outcome variables must be measured at two time points. This would enable an evaluation of the extent to which Wave 1 activity involvement predicts Wave 3 developmental outcomes, controlling for Wave 1 developmental outcomes; and the extent to which Wave 1 developmental outcomes predict Wave 3 activity involvement controlling for Wave 1 activity involvement (Little, Card, Preacher, & McConnell, In preparation).

Conclusions

Neighborhood resources clearly moderate the effect of activity involvement on early adolescent outcomes. This relationship is complex and varies based on individual characteristics including gender and the ability to self-regulate. Additional research needs to be conducted in order to determine whether these results persist through adolescence and emerging adulthood.

Policy makers should be aware of the importance of considering the needs of youth living in neighborhoods with differing resources particularly when designing and funding programs for youth. The neighborhood context matters and this is a context that is amenable to change. Changes at the neighborhood level can potentially impact many individuals simultaneously. The results of this study found significance for both individual variables (self-regulation) and contextual variables indicating the systemic relationship between the developing individual and his or her context. The greatest impact on positive developmental outcomes will occur when individual factors are considered together with environmental contexts. Interventions that target both individual behavior and the neighborhoods in which youth are embedded are likely to be the most successful at promoting optimal development.

APPENDIX A

Appendix A provides tables and figures for the profile of neighborhood assets across the four asset dimensions disaggregated by gender. The information is presented first for boys and than for girls.

Table 4. Mean scores and standard deviations for neighborhood asset variables across the four counties for boys

	Physical Resources		Collective Activity		Accessibility		Human Resources	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Worcester (n = 9)	0.03	0.42	-0.17	0.46	0.41	0.47	0.02	0.39
Missoula (n = 25)	-0.72	0.24	0.51	0.45	0.05	0.08	0.39	0.33
Pima (n = 21)	-0.01	0.63	0.22	0.47	-0.06	0.78	-0.63	0.52
Miami Dade (n = 31)	0.62	0.52	-0.44	0.46	0.31	0.45	0.43	0.61

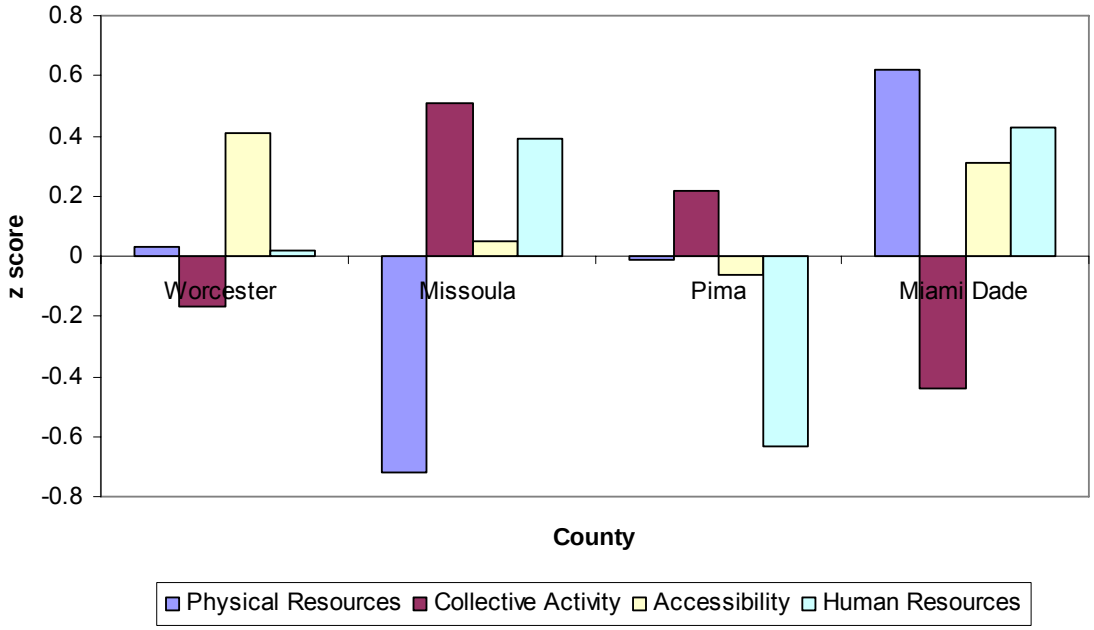

Figure 15. Neighborhood asset scores by county for boys

Table 5. Mean scores for neighborhood asset variables by census tract for boys in Worcester county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
7301 (n = 2)	-0.08	-0.66	0.92	0.44
7311.01 (n = 4)	0.42	0.21	0.47	-0.09
7322.03 (n = 1)	-0.08	0.21	-0.51	0.26
7323 (n = 1)	-0.59	-0.66	0.66	0.11
7326 (n = 1)	-0.59	-0.66	-0.18	-0.72

Table 6. Mean scores for neighborhood asset variables by census tract for boys in Missoula county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
2.02 (n = 6)	-1.14	0.89	-0.07	0.41
15 (n = 8)	-0.59	0.89	0.04	0.45
16 (n = 11)	-0.59	0.01	0.13	0.33

Table 39. Mean scores for neighborhood asset variables by census tract for boys in Pima county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
37.01 (n = 4)	0.48	0.01	-0.59	-0.48
37.02 (n = 1)	-0.59	0.01	-0.55	-0.01
37.05 (n = 13)	-0.59	0.89	0.13	-0.22
38.02 (n = 1)	2.10	1.76	0.02	-1.33
39.01 (n = 1)	-0.03	0.89	1.21	-0.05
39.03 (n = 1)	-0.59	0.89	1.20	-0.45
41.04 (n = 4)	-0.59	0.01	-1.12	-0.32
41.06 (n = 5)	-0.08	0.01	0.24	-1.30
41.10 (n = 2)	-0.03	0.01	1.03	-0.51
41.12 (n = 1)	0.47	0.01	0.36	-0.37

Table 7. Mean scores for neighborhood asset variables by census tract for boys in Miami-Dade county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
1.11 (n = 8)	1.09	-0.66	0.68	0.48
1.15 (n = 1)	0.47	-0.66	0.97	-0.13
27.01 (n = 1)	-0.59	-0.66	0.56	-0.38
46.01 (n = 5)	1.09	-0.66	-0.05	1.05
65 (n = 1)	-0.59	-0.66	0.94	0.36
93.06 (n = 1)	-0.59	-0.66	0.64	-0.22
97.01 (n = 11)	0.47	-0.36	0.32	0.57
113 (n = 2)	0.47	0.88	-0.79	-0.22
114.02 (n = 1)	-0.03	-0.66	-0.66	-1.32

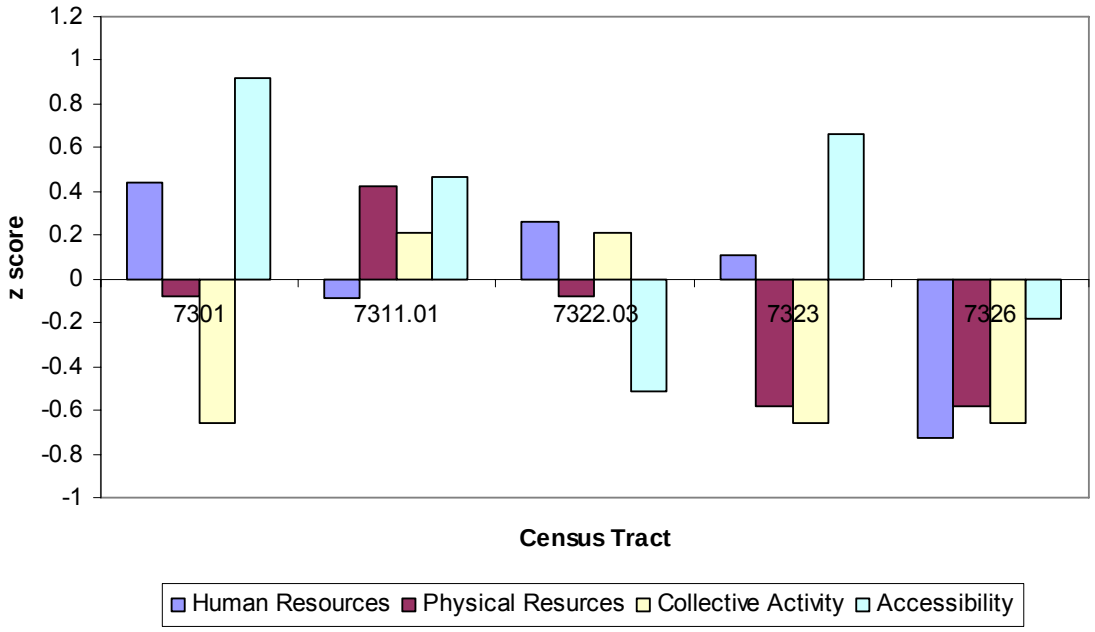

Figure 16. Worcester county neighborhood asset scores by census tract for boys

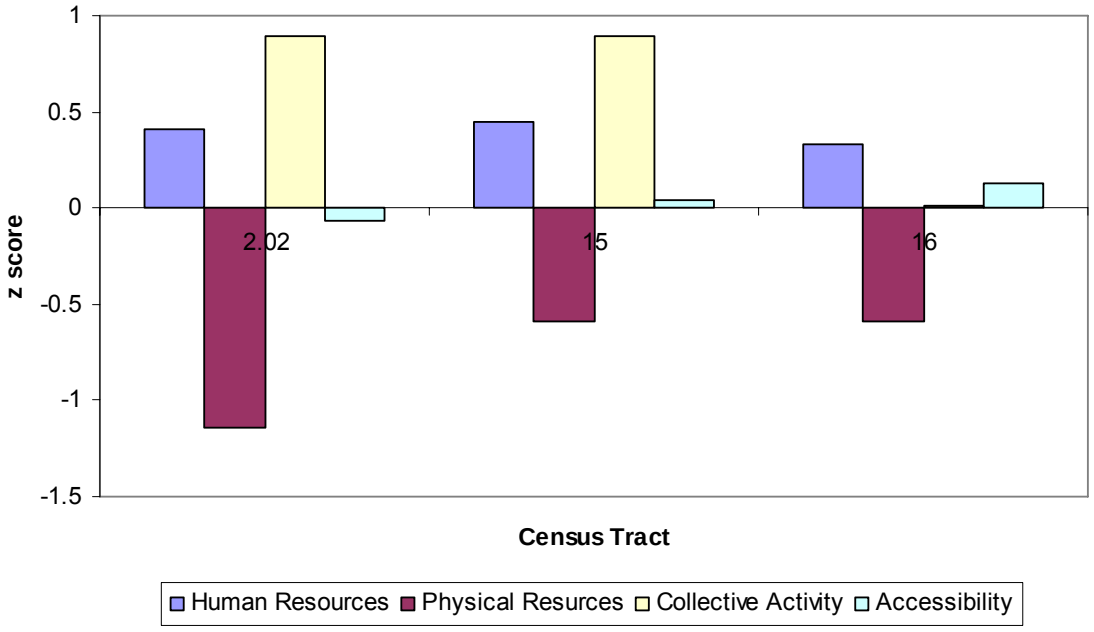

Figure 1. Missoula county neighborhood asset scores by census tract for boys

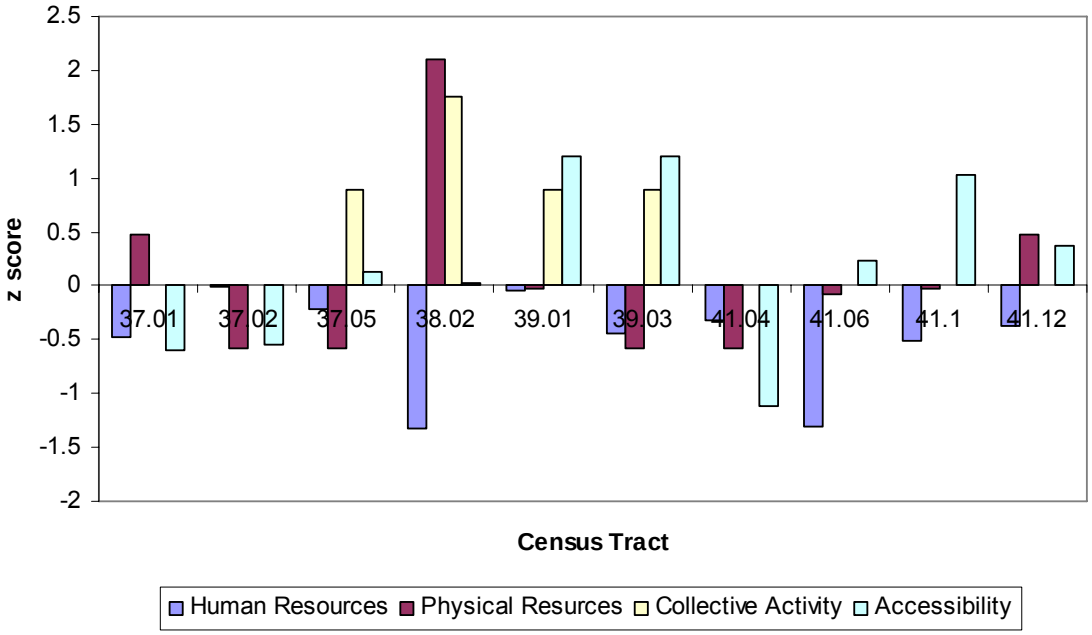

Figure 2. Pima county neighborhood asset scores by census tract for boys

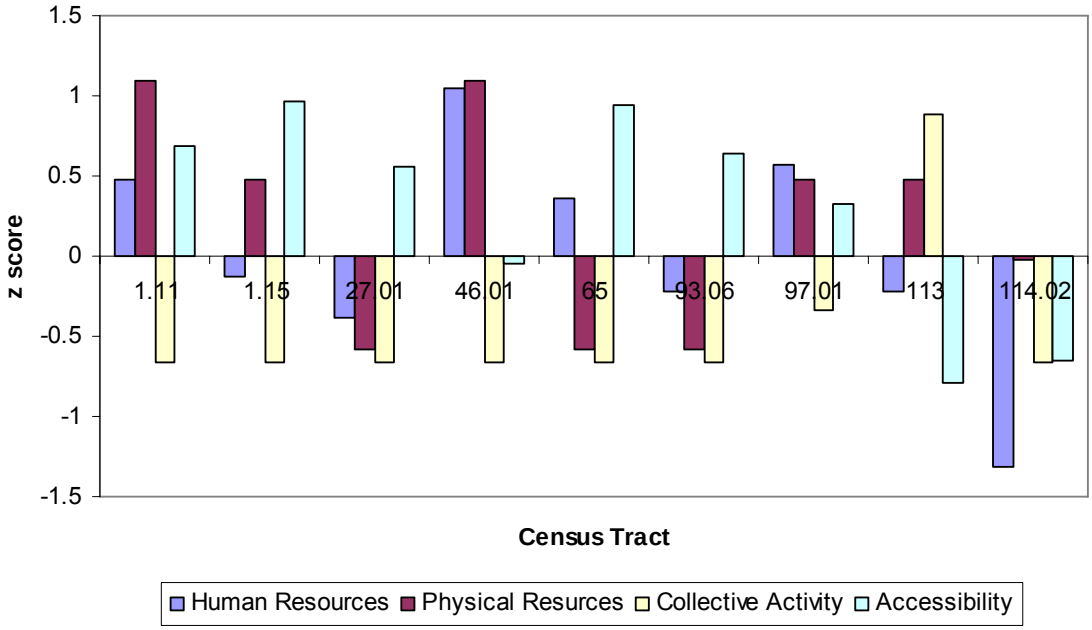

Figure 3. Miami-Dade county neighborhood asset scores by census tract for boys

Table 8. Mean scores and standard deviations for neighborhood asset variables across the four counties for girls

	Physical Resources		Collective Activity		Accessibility		Human Resources	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Worcester (n = 9)	-0.03	0.17	-0.08	0.43	-0.05	0.46	-0.11	0.37
Missoula (n = 37)	-0.83	0.31	0.65	0.45	0.03	0.19	0.49	0.33
Pima (n = 37)	-0.13	0.51	0.11	0.28	-0.45	0.69	-0.38	0.46
Miami Dade (n = 39)	0.35	0.58	-0.36	0.50	0.33	0.86	0.37	0.51

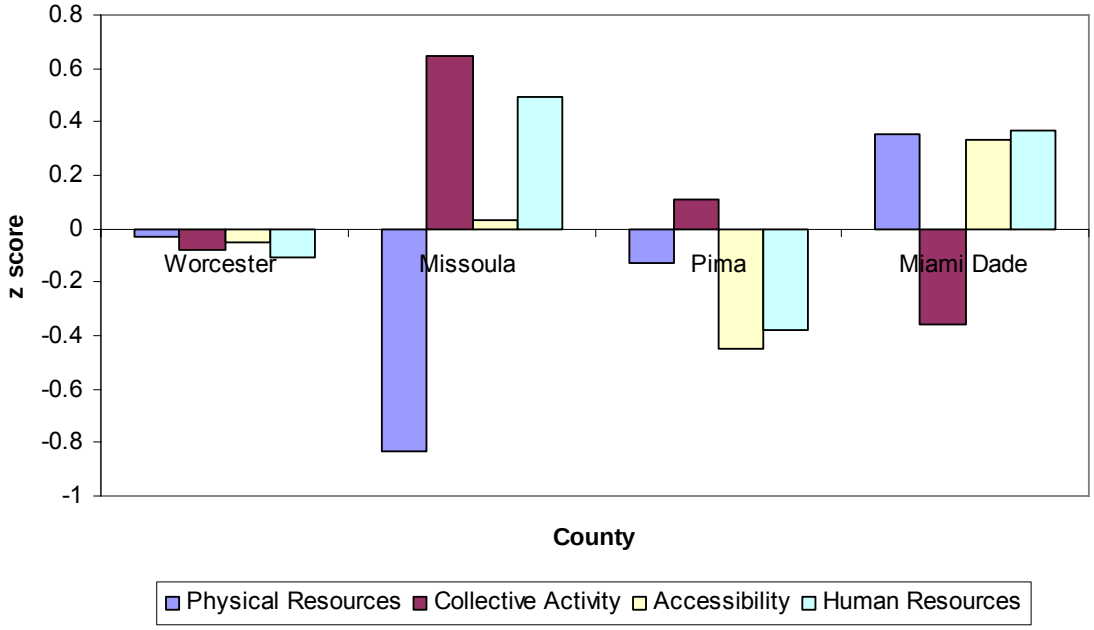

Figure 20. Neighborhood asset scores by county for girls

Table 9. Mean scores for neighborhood asset variables by census tract for girls in Worcester county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
7301 (n = 1)	-0.08	-0.66	0.92	0.15
7311.01 (n = 1)	0.42	0.21	0.47	-0.08
7312.01 (n = 2)	-0.08	-0.66	-0.36	0.43
7324 (n = 4)	-0.08	0.21	-0.30	-0.37
7330 (n = 1)	-0.08	0.21	0.06	-0.46

Table 10. Mean scores for neighborhood asset variables by census tract for girls in Missoula county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
2.01 (n = 1)	-0.03	1.76	-0.77	0.11
2.02 (n = 14)	-1.14	0.89	-0.07	0.36
14 (n = 3)	-1.14	0.89	0.39	0.77
15 (n = 8)	-0.59	0.89	0.04	0.61
16 (n = 11)	-0.59	0.01	0.13	0.52

Table 11. Mean scores for neighborhood asset variables by census tract for girls in Pima county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
37.01 (n = 4)	0.47	0.01	-0.59	-0.28
37.02 (n = 2)	-0.59	0.01	-0.55	-0.27
37.04 (n = 1)	1.09	0.89	0.08	-0.47
37.05 (n = 2)	-0.59	0.89	0.13	-0.46
41.04 (n = 13)	-0.59	0.01	-1.12	-0.19
41.05 (n = 4)	0.47	0.01	-0.32	-1.04
41.06 (n = 4)	-0.08	0.01	0.24	-1.03
41.10 (n = 2)	-0.03	0.01	1.03	-0.16
41.11 (n = 1)	0.43	-0.03	0.89	-1.74
41.12 (n = 3)	0.47	0.01	0.36	-0.15
44.09 (n = 1)	-0.59	0.01	-0.06	0.00

Table 12. Mean scores for neighborhood asset variables by census tract for girls in Miami-Dade county

Census Tract	Physical Resources	Collective Activity	Accessibility	Human Resources
1.11 (n = 5)	1.09	-0.66	0.68	0.66
1.12 (n = 2)	-0.59	-0.66	2.80	-0.52
1.14 (n = 1)	-0.03	-0.66	2.80	-0.11
1.15 (n = 1)	0.47	-0.66	0.97	-0.12
2.24 (n = 1)	-0.08	0.23	0.08	0.43
37.02 (n = 1)	-0.59	-0.66	-0.55	-0.01
46.01 (n = 4)	1.09	-0.66	-0.05	0.94
46.02 (n = 2)	0.47	-0.66	-0.04	0.97
97.01 (n = 12)	0.47	-0.21	0.32	0.53
98.01 (n = 1)	-0.03	-0.66	-0.33	0.82
98.02 (n = 5)	-0.59	-0.66	0.08	0.17
110.01 (n = 1)	-0.03	0.01	-0.96	-0.30
113 (n = 3)	0.47	0.88	-0.79	-0.51

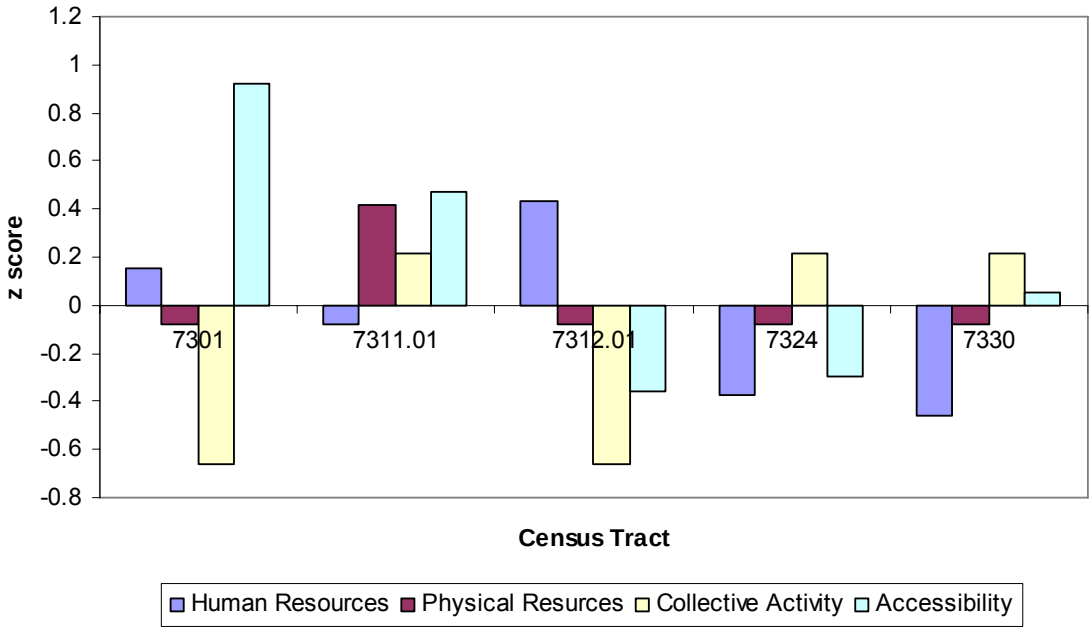

Figure 21. Worcester county neighborhood asset scores by census tract for girls

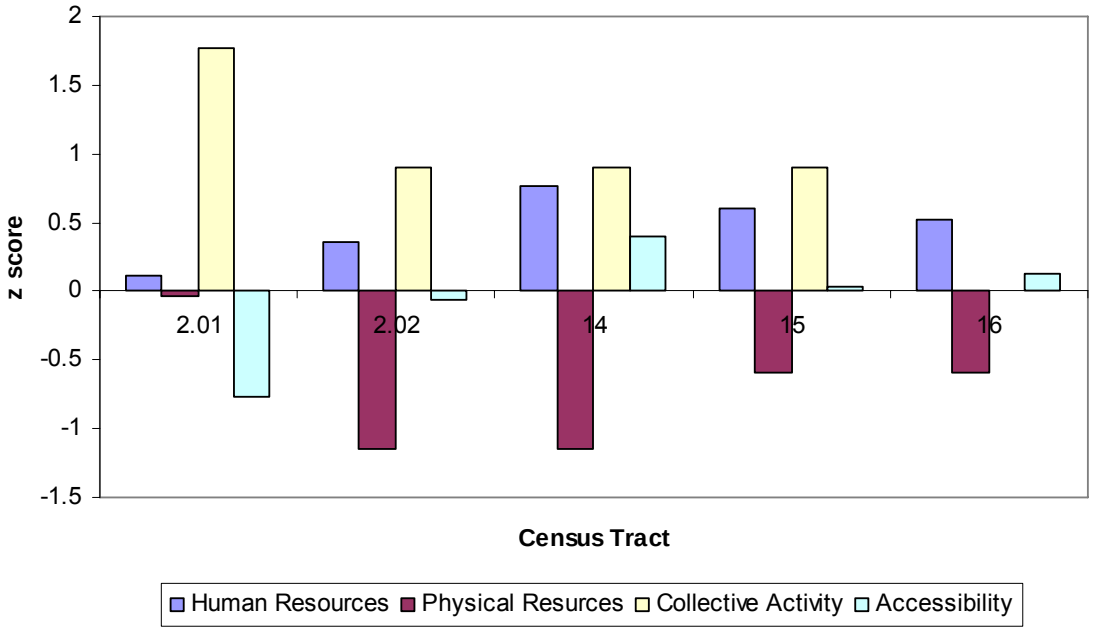

Figure 22. Missoula county neighborhood asset scores by census tract for girls

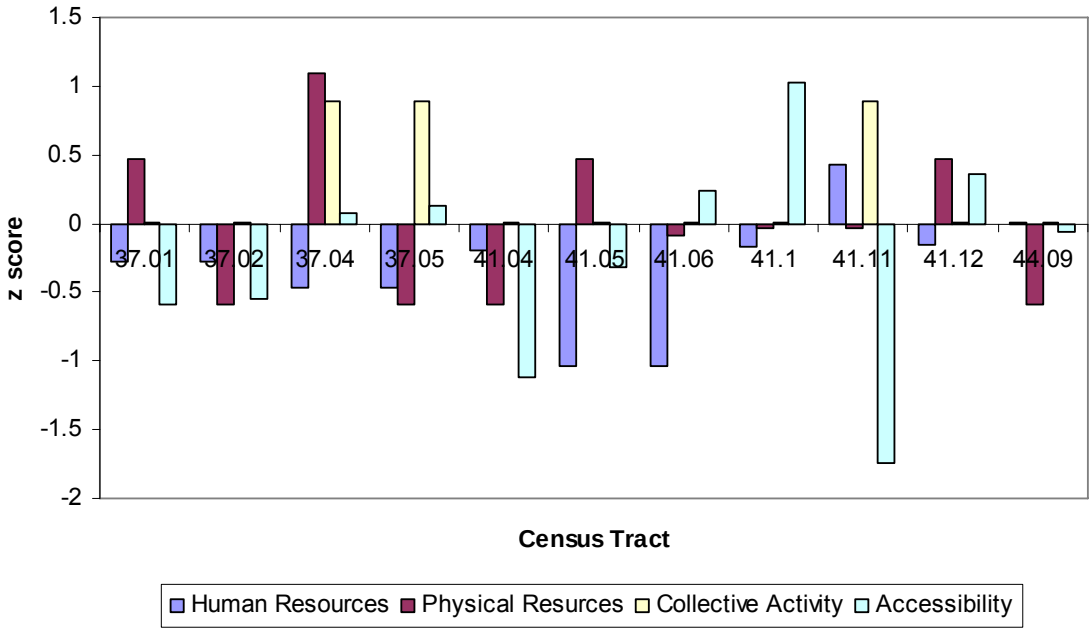

Figure 4. Pima county neighborhood asset scores by census tract for girls

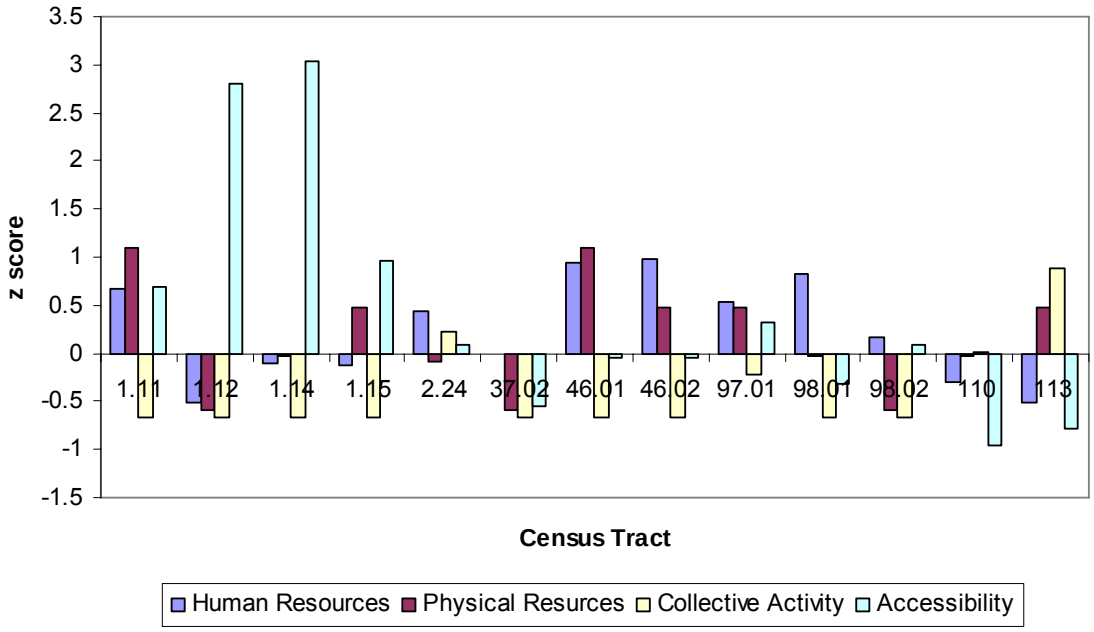

Figure 5. Miami-Dade county neighborhood asset scores by census tract for girls

APPENDIX B

"Smooth lines can be deceiving" (William Trochim).

Appendix B presents plots of the actual data points along with graphs of predicted values for the significant results found for Hypothesis one. A separate graph of actual data points is shown for low, medium, and high asset dimensions. Since the actual measure of neighborhood assets was a continuous variable, these categorical distinctions are somewhat arbitrary. The graphs of predicted values were calculated by using the following values for the neighborhood asset scores: -.5 = low asset, 0 = medium asset, .5 = high asset. Although the range of neighborhood asset scores varied depending upon the asset dimension, the same values were entered into the equation used to generate the predicted values graphs. This was done to maintain consistency across all of the asset dimensions.

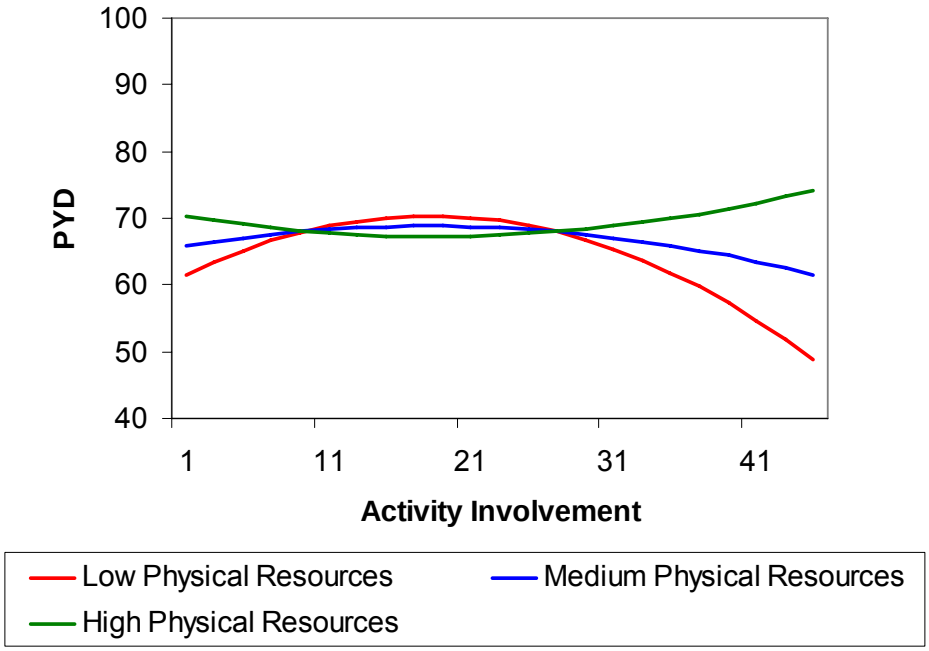

Figure 6. PYD predicted by activity involvement and physical resources for boys

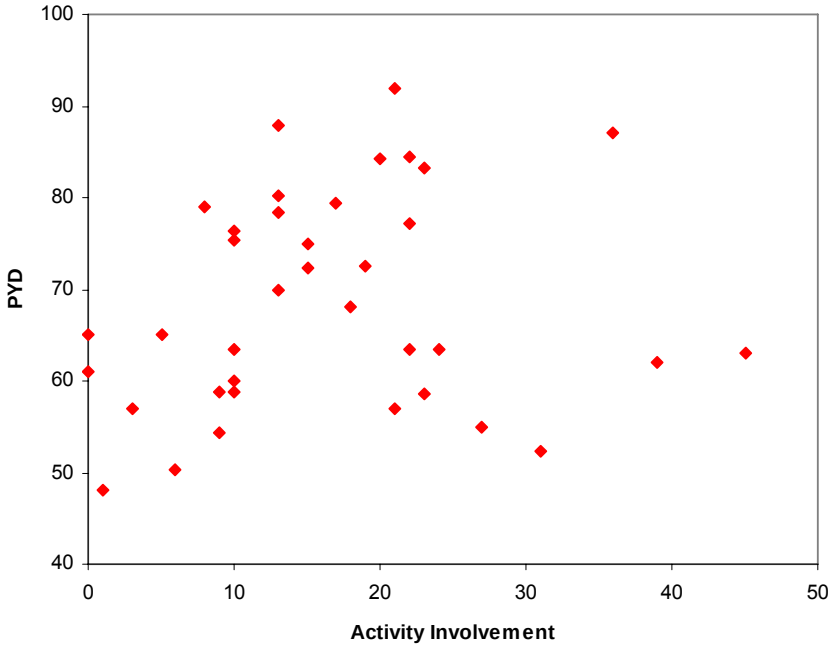

Figure 6. Actual data points for PYD and activity involvement for low physical resource boys

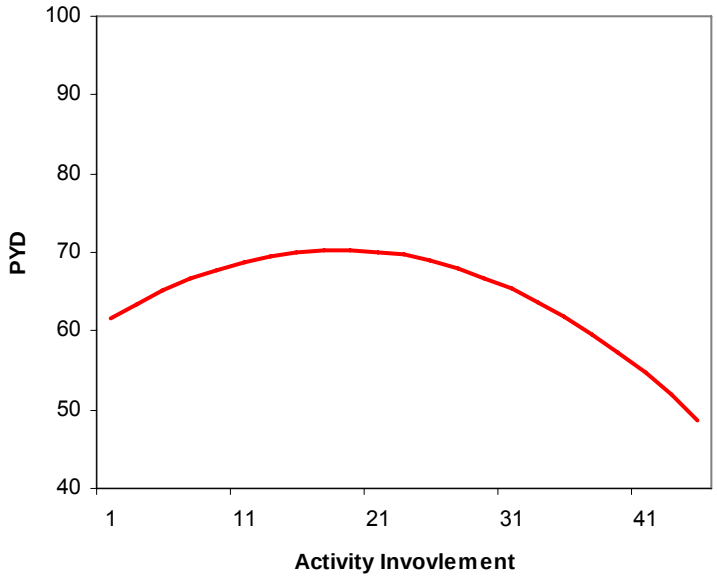

Figure 7. Predicted values for PYD and activity involvement for low physical resource boys

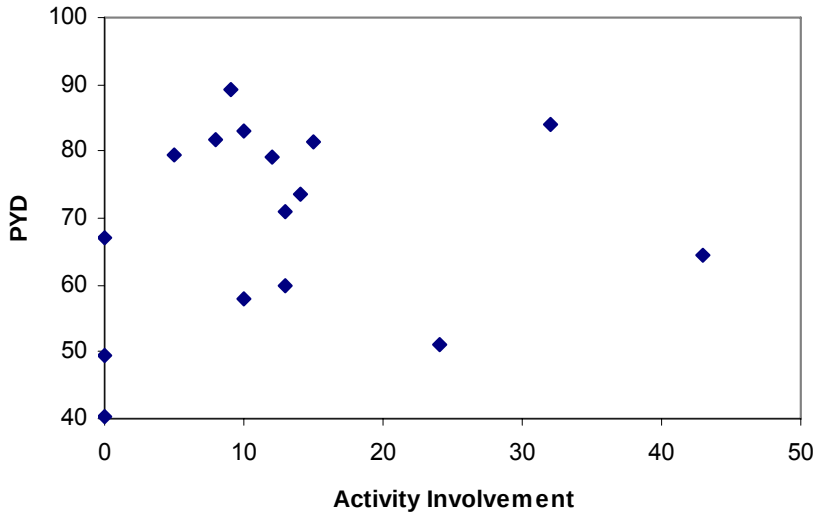

Figure 8. Actual data points for PYD and activity involvement for medium physical resource boys

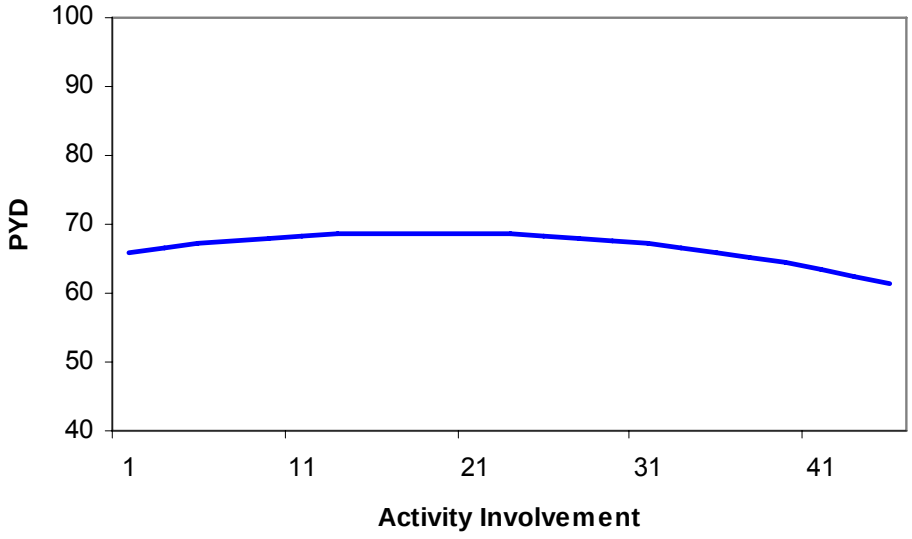

Figure 9. Predicted values for PYD and activity involvement for medium physical resource boys

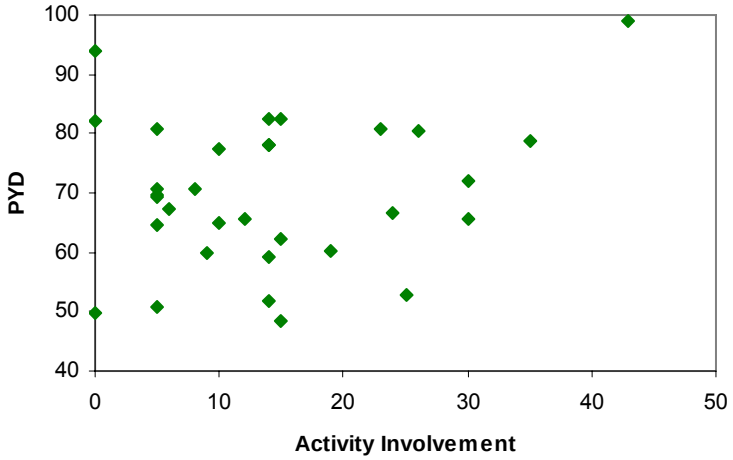

Figure 10. Actual data points for PYD and activity involvement for high physical resource boys

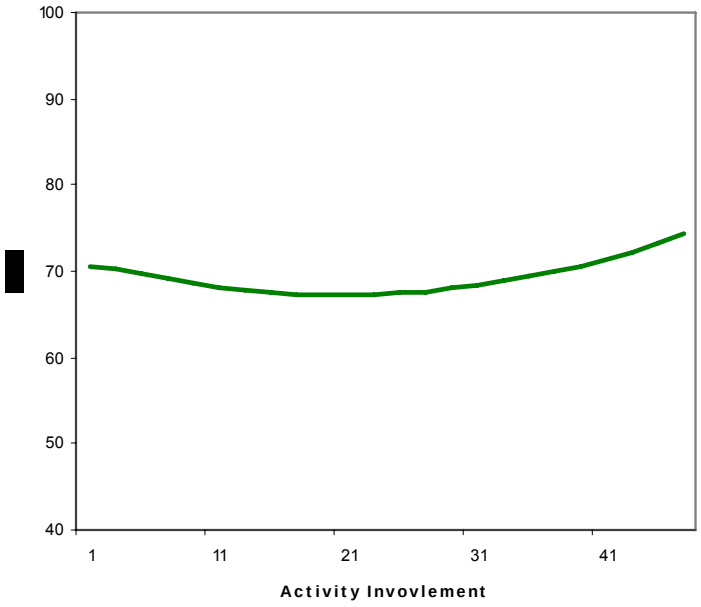

Figure 30. Predicted values for PYD and activity involvement for high physical resource boys

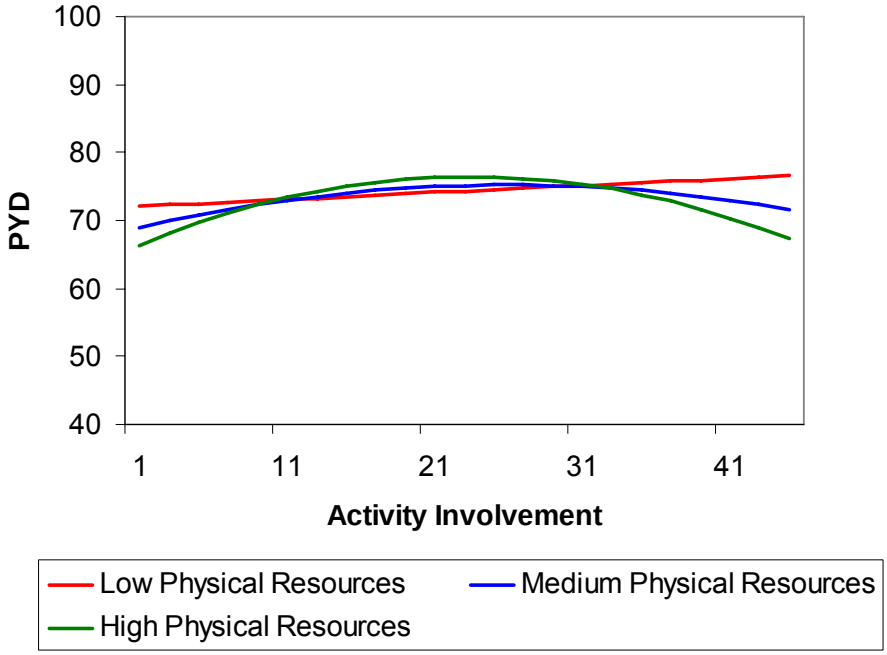

Figure 7. PYD predicted by activity involvement and physical resources for girls

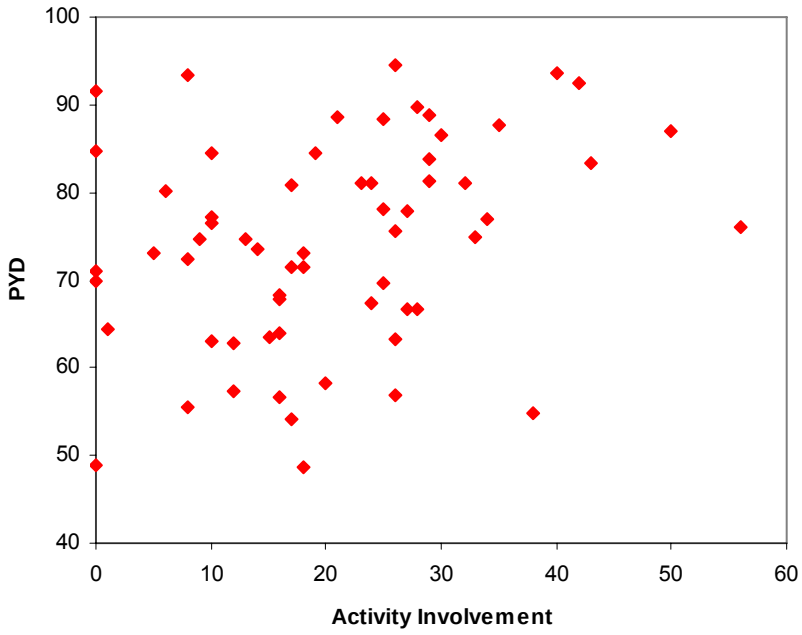

Figure 31. Actual data points for PYD and activity involvement for low physical resource girls

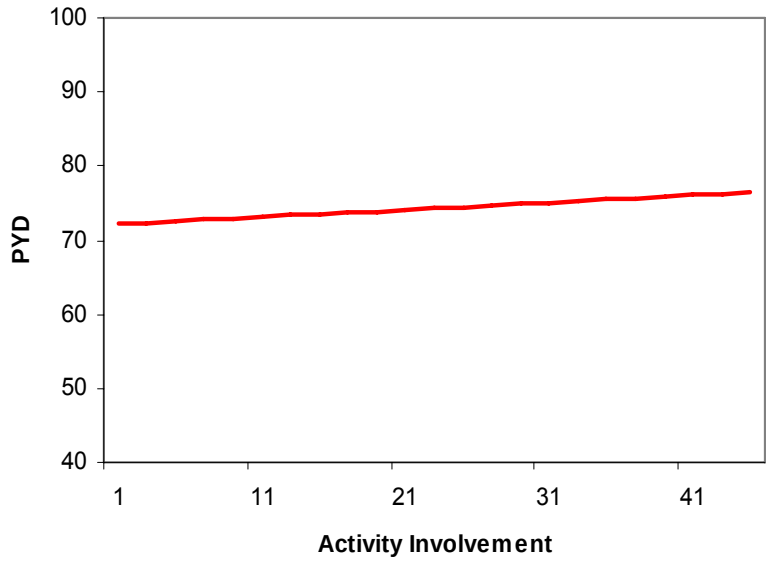

Figure 32. Predicted values for PYD and activity involvement for low physical resource girls

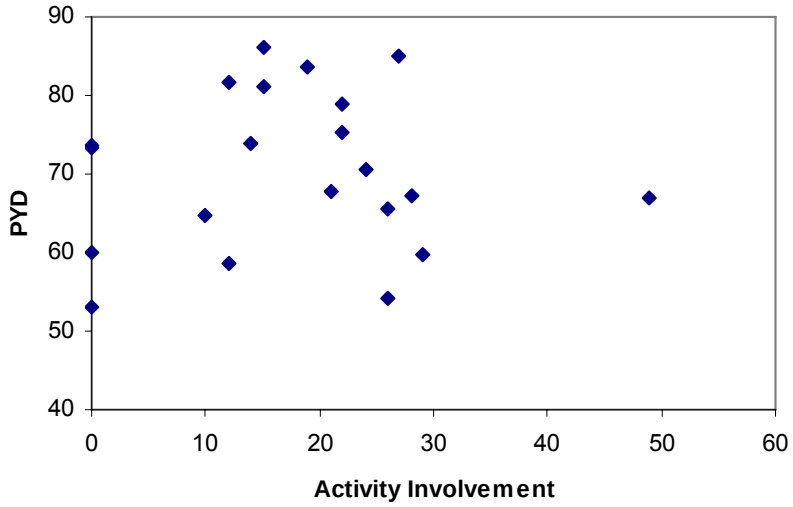

Figure 33. Actual data points for PYD and activity involvement for medium physical resource girls

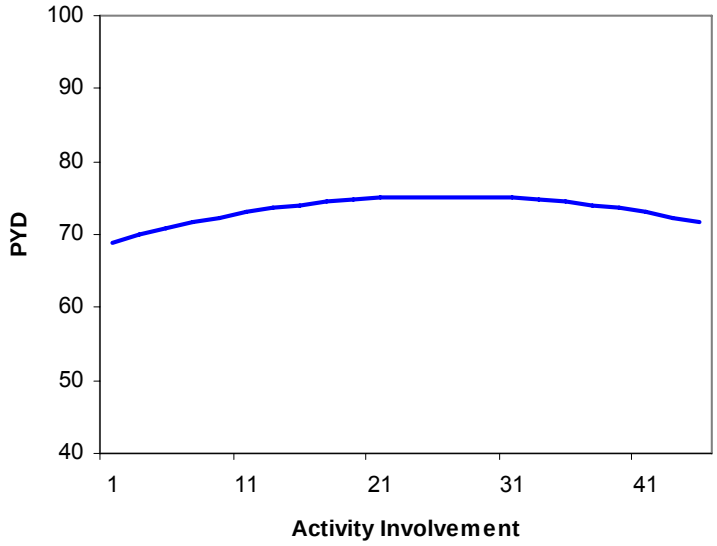

Figure 34. Predicted values for PYD and activity involvement for medium physical resource girls

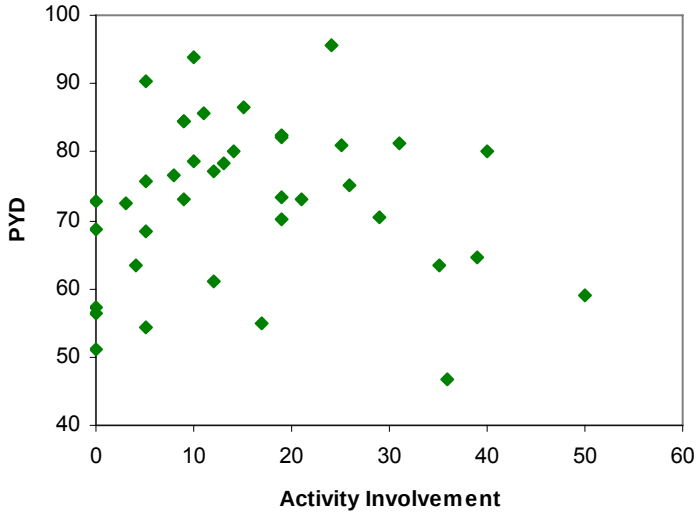

Figure 35. Actual data points for PYD and activity involvement for high physical resource girls

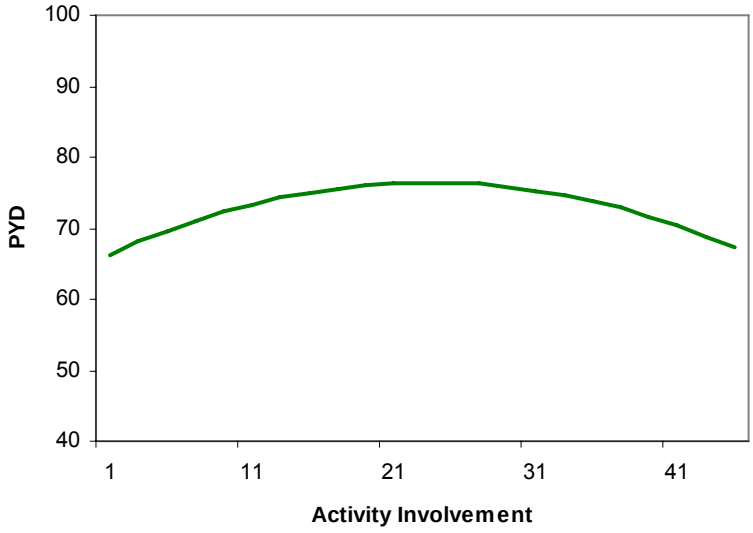

Figure 36. Predicted values for PYD and activity involvement for high physical resource girls

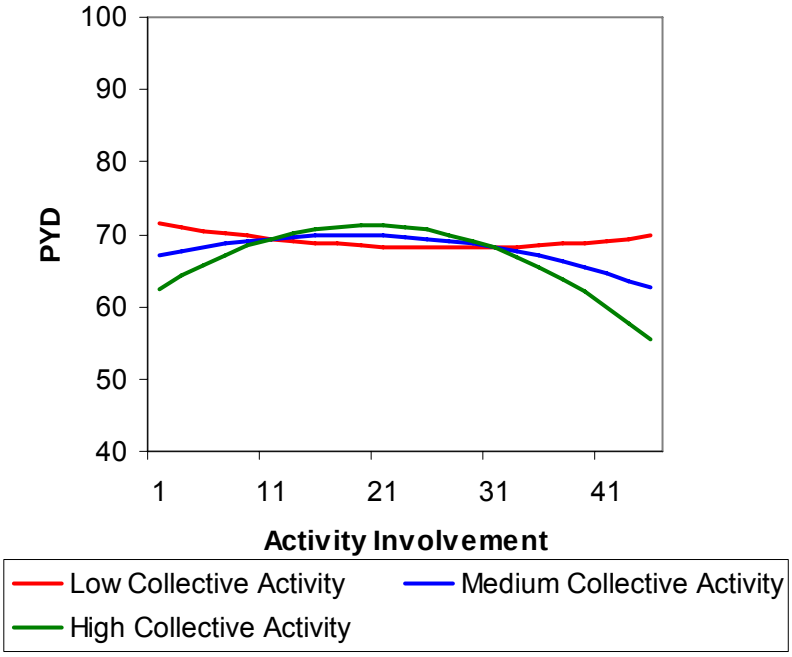

Figure 8. PYD predicted by activity involvement and collective activity for boys

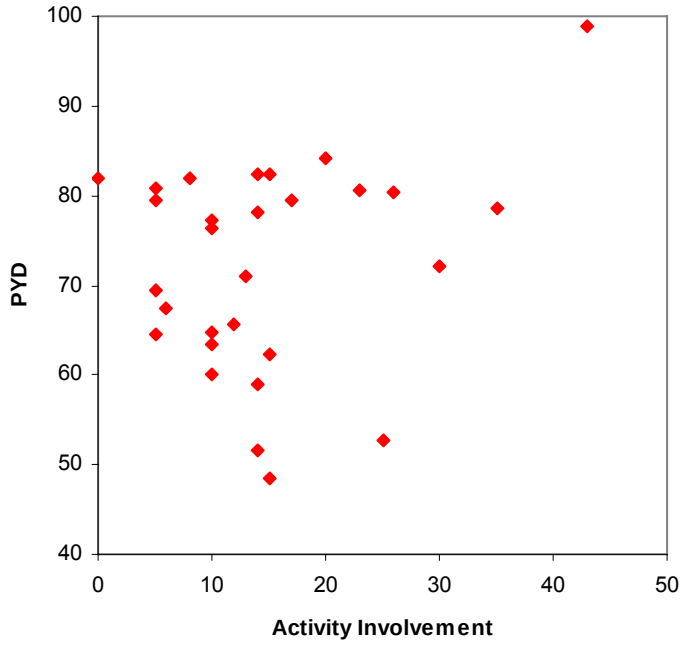

Figure 37. Actual data points for PYD and activity involvement for low collective activity boys

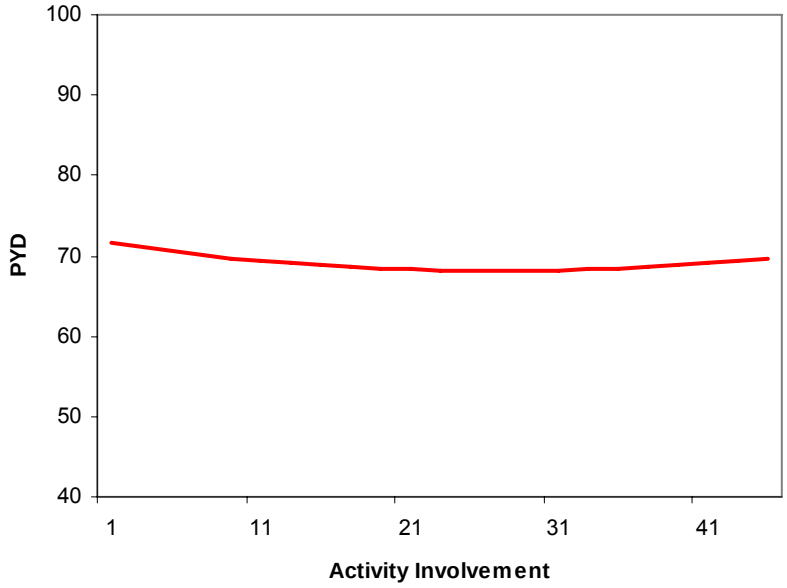

Figure 118. Predicted values for PYD and activity involvement for low collective activity boys

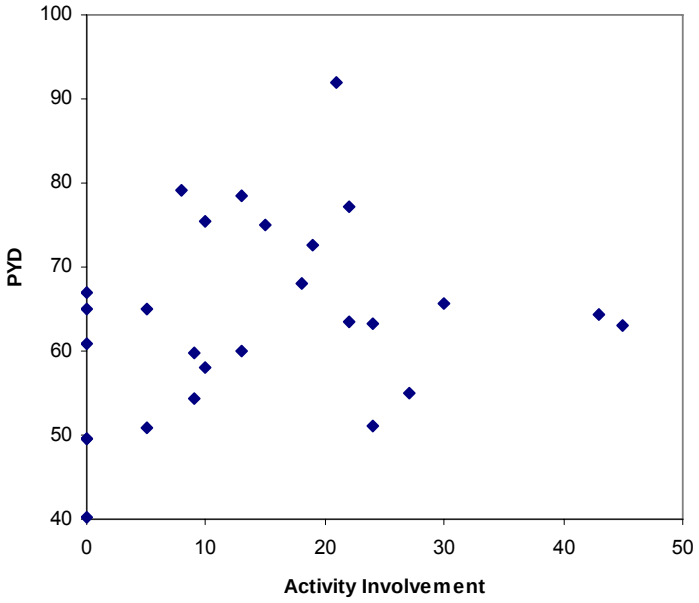

Figure 129. Actual data points for PYD and activity involvement for medium collective activity boys

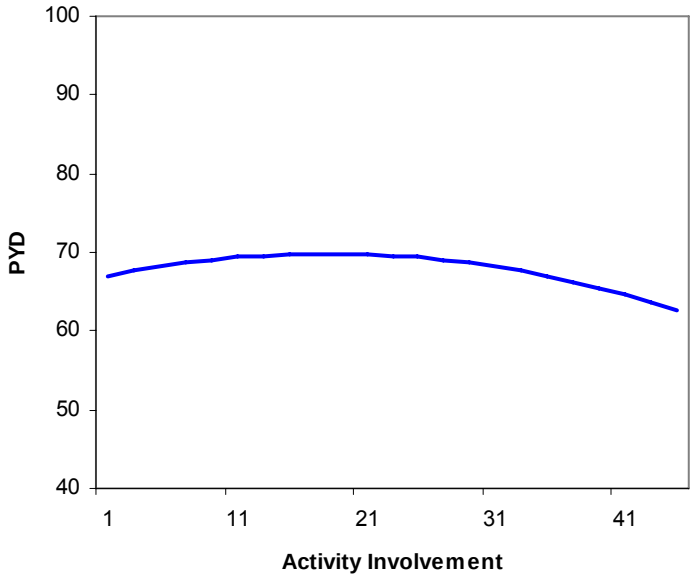

Figure 40. Predicted values for PYD and activity involvement for medium collective activity boys

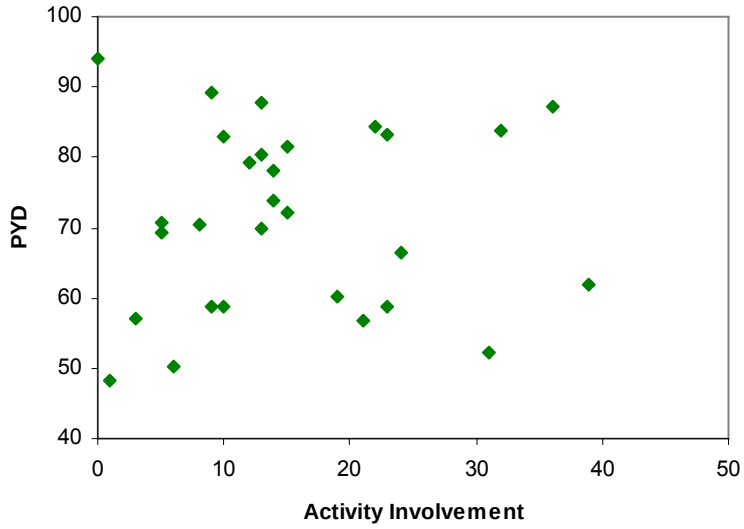

Figure 41. Actual data points for PYD and activity involvement for high collective activity boys

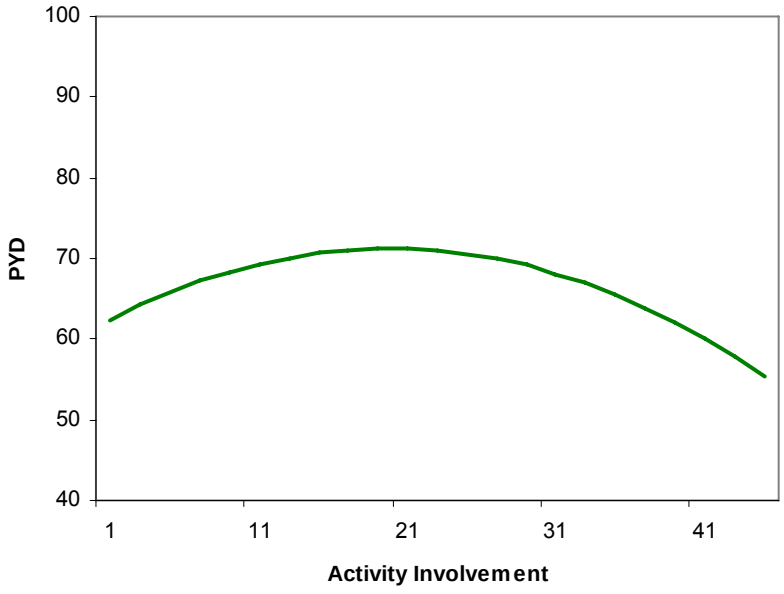

Figure 42. Predicted values for PYD and activity involvement for high collective activity boys

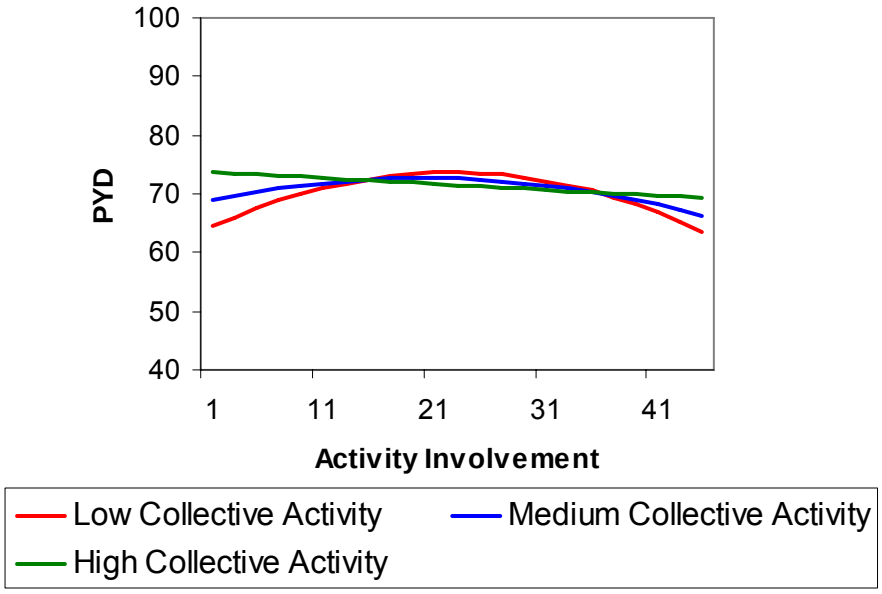

Figure 9. PYD predicted by activity involvement and collective activity for girls

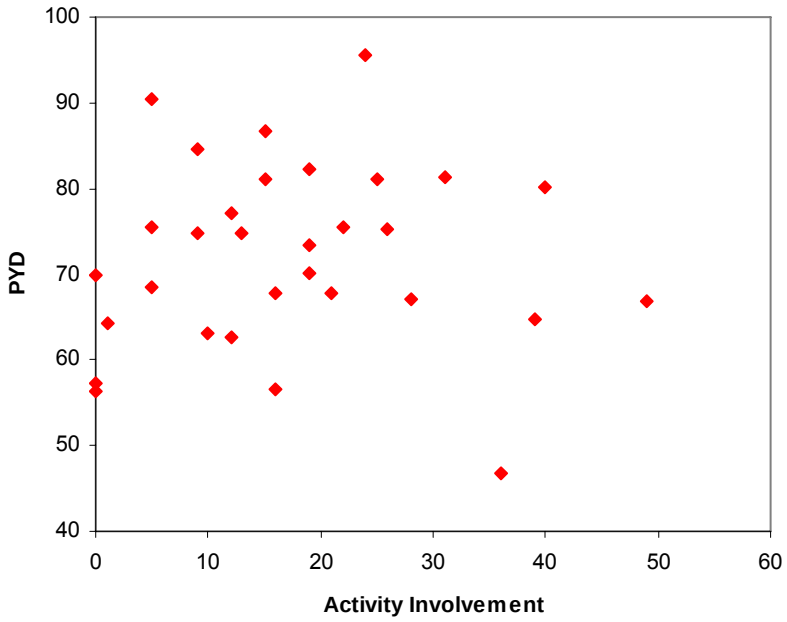

Figure 43. Actual data points for PYD and activity involvement for low collective activity girls

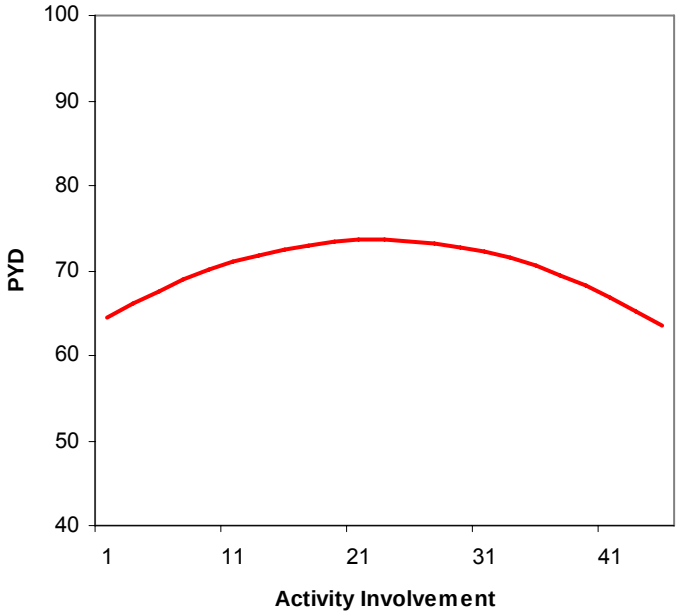

Figure 44. Predicted values for PYD and activity involvement for low collective activity girls

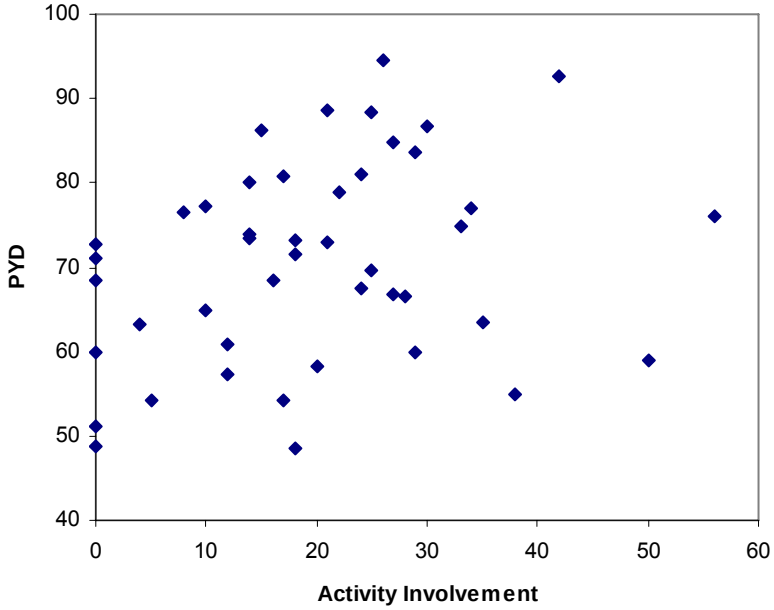

Figure 45. Actual data points for PYD and activity involvement for medium collective activity girls

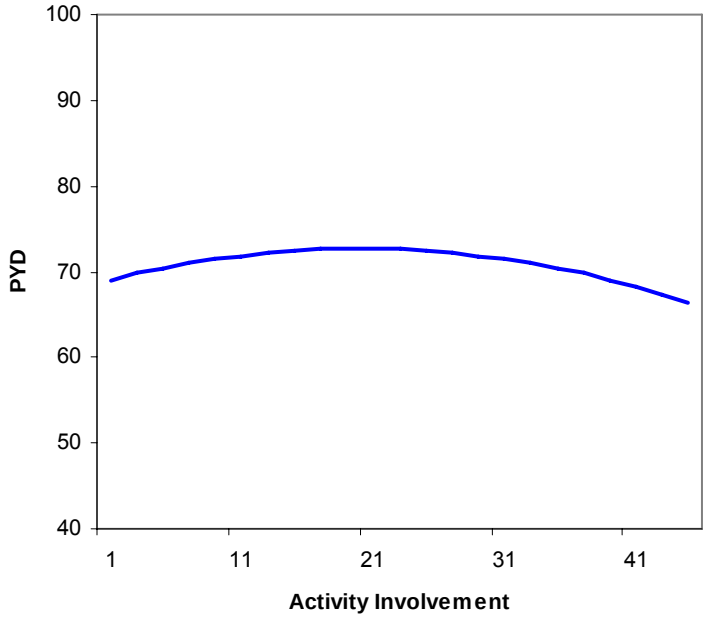

Figure 46. Predicted values for PYD and activity involvement for medium collective activity girls

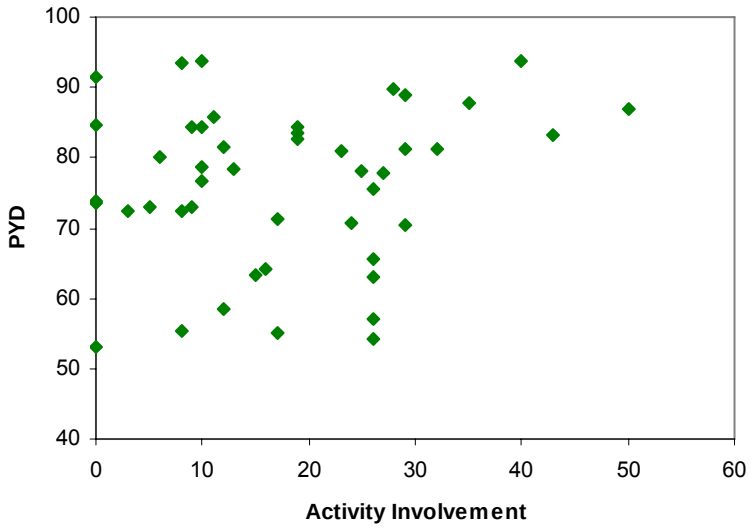

Figure 47. Actual data points for PYD and activity involvement for high collective activity girls

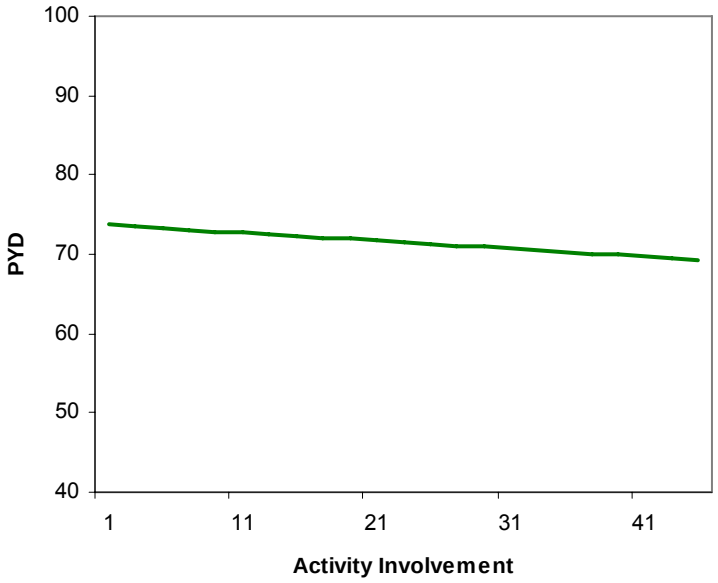

Figure 48. Predicted values for PYD and activity involvement for high collective activity girls

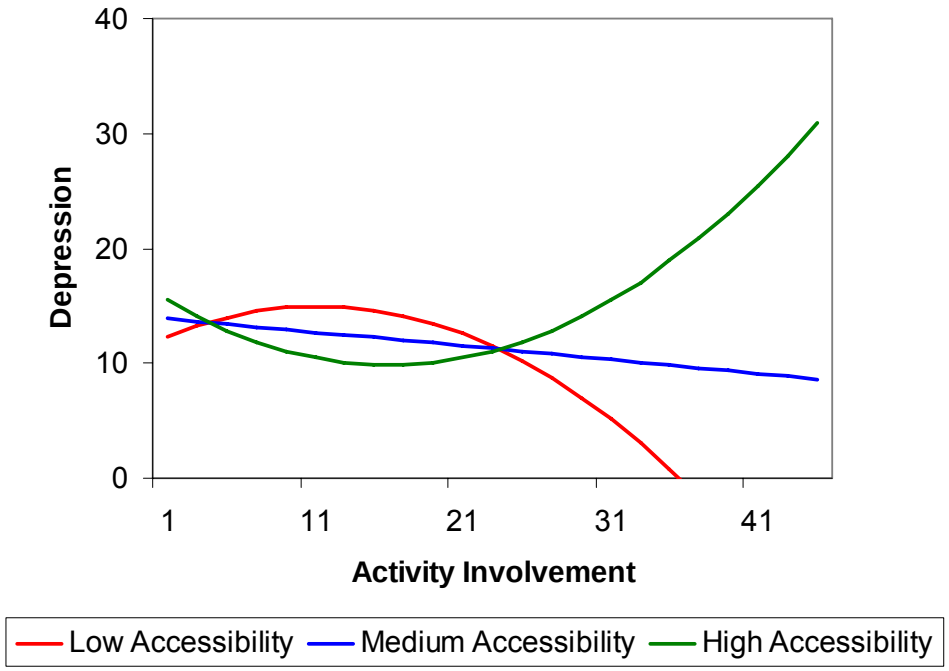

Figure 10. Depression predicted by activity involvement and accessibility for boys

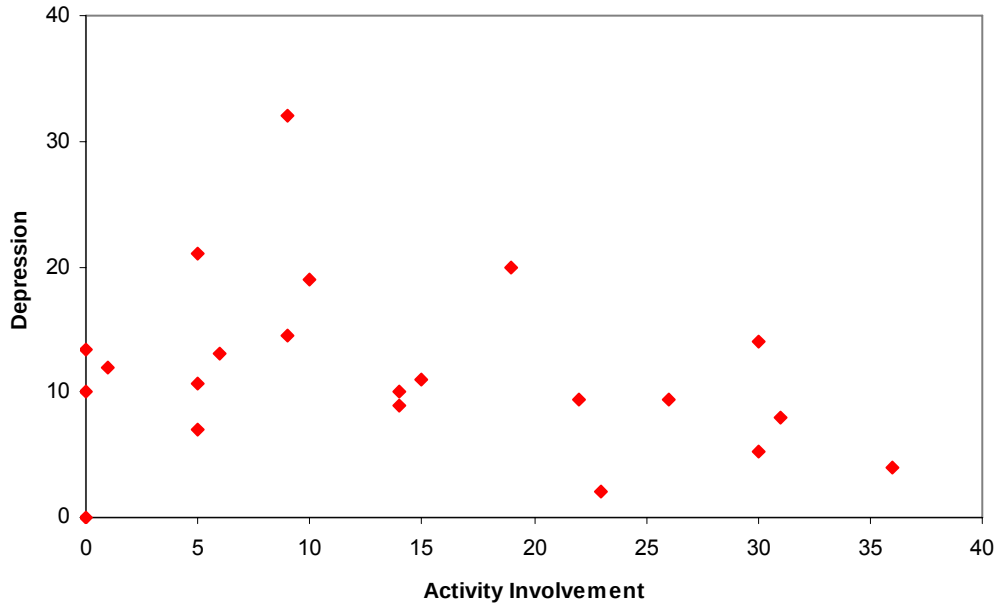

Figure 49. Actual data points for depression and activity involvement for low accessibility boys

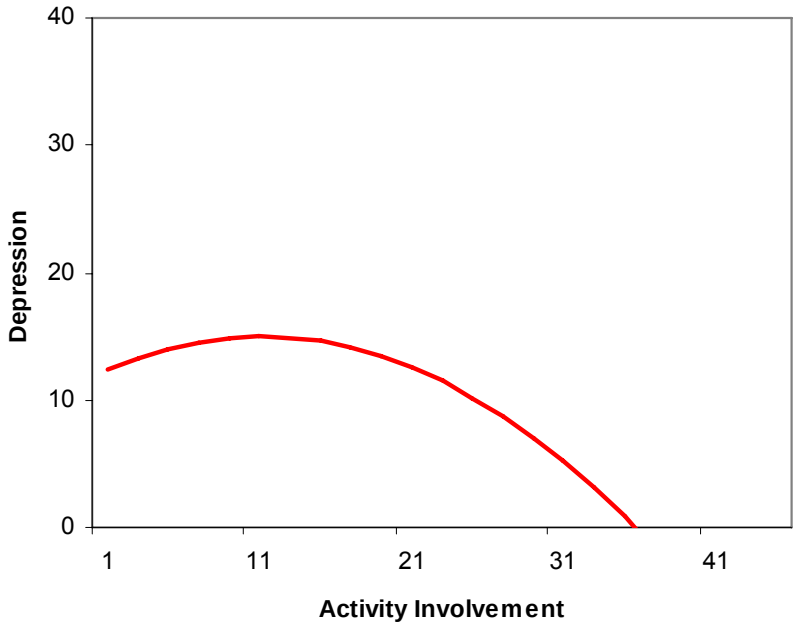

Figure 50. Predicted values for depression and activity involvement for low accessibility boys

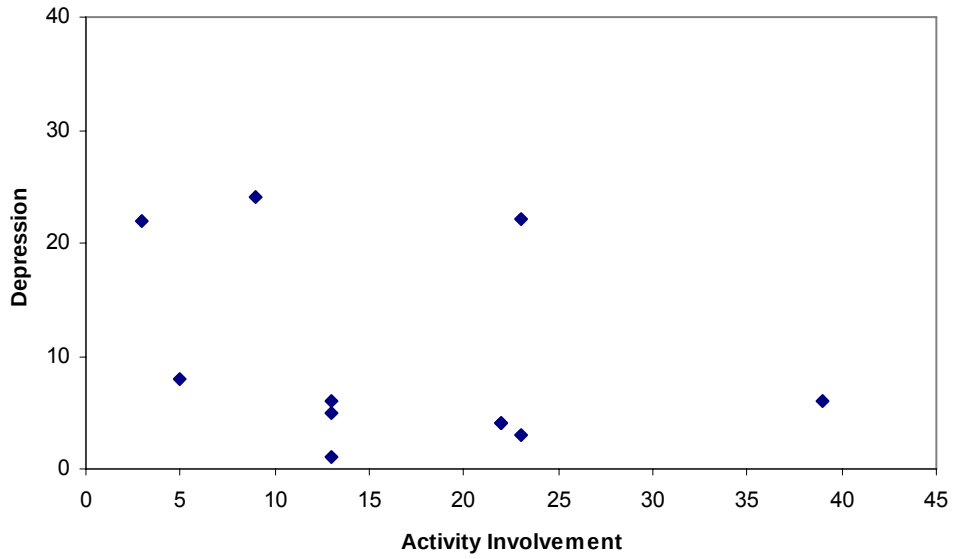

Figure 51. Actual data points for depression and activity involvement for medium accessibility boys

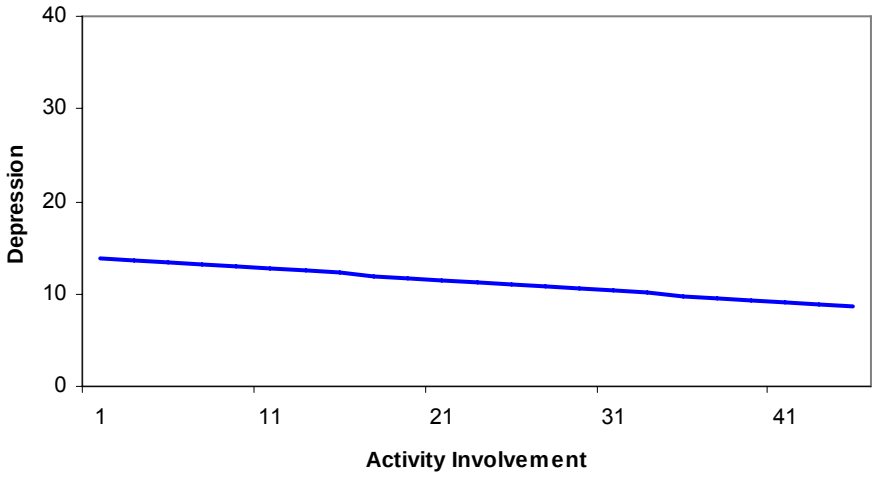

Figure 52. Predicted values for depression and activity involvement for medium accessibility boys

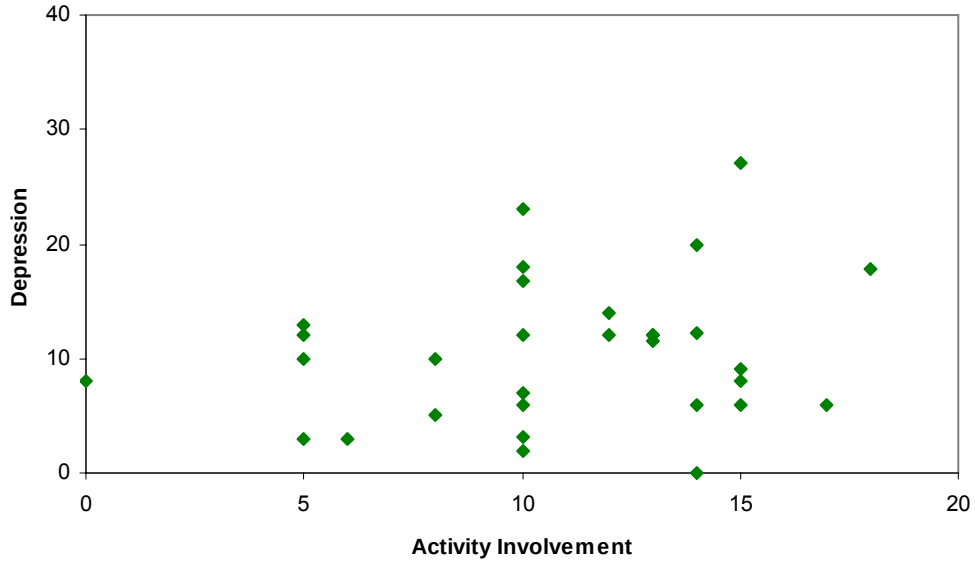

Figure 53. Actual data points for depression and activity involvement for high accessibility boys

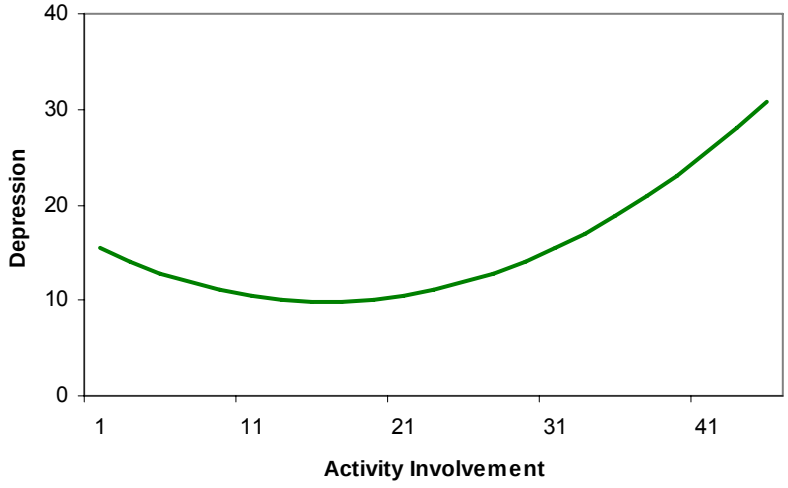

Figure 54. Predicted values for depression and activity involvement for high accessibility boys

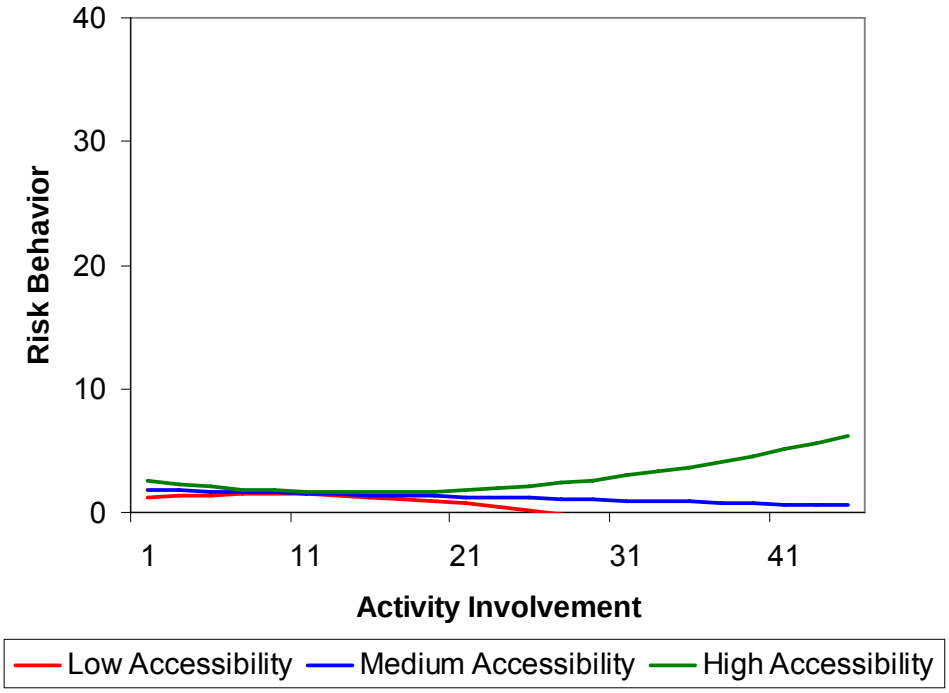

Figure 11. Risk behavior predicted by activity involvement and accessibility for girls

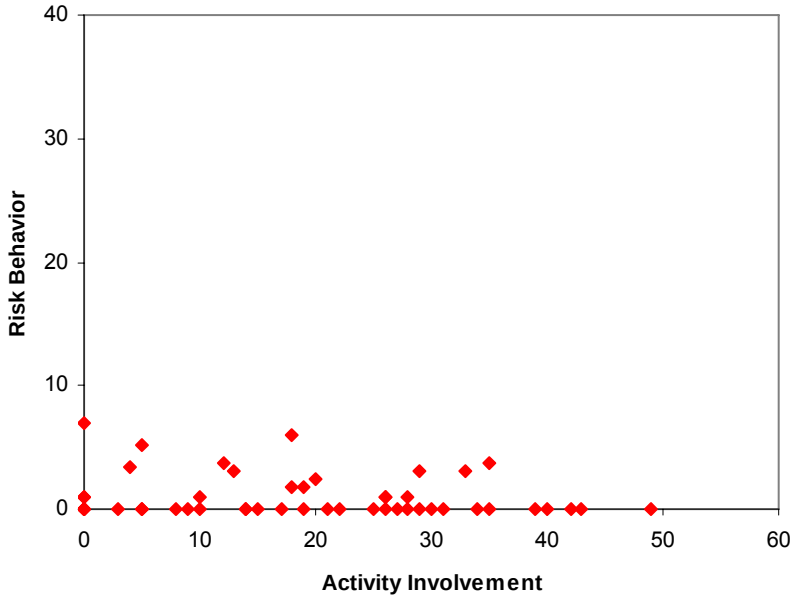

Figure 55. Actual data points for risk behavior and activity involvement for low accessibility girls

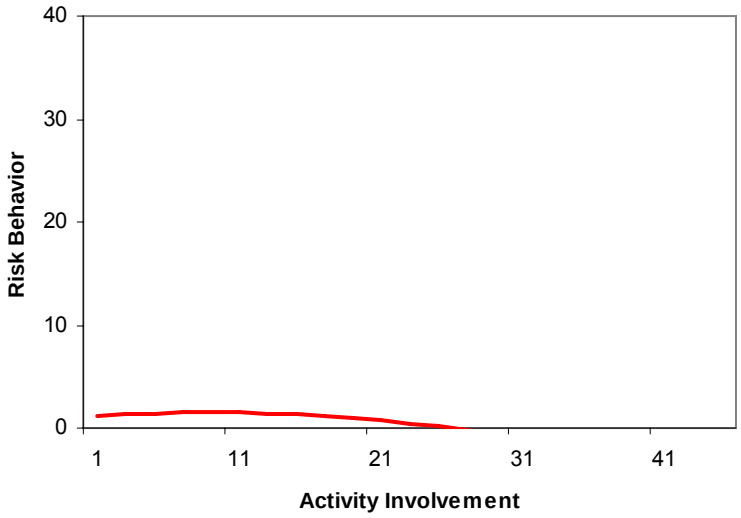

Figure 56. Predicted values for risk behavior and activity involvement for low accessibility girls

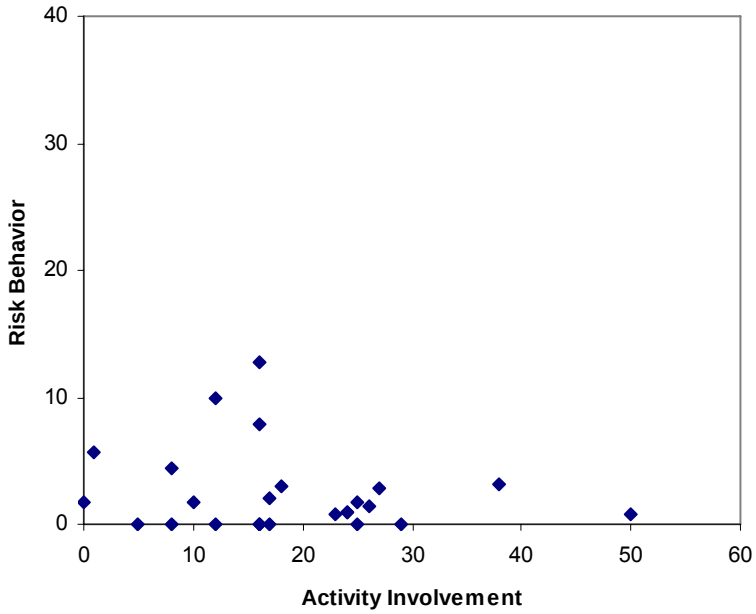

Figure 57. Actual data points for risk behavior and activity involvement for medium accessibility girls

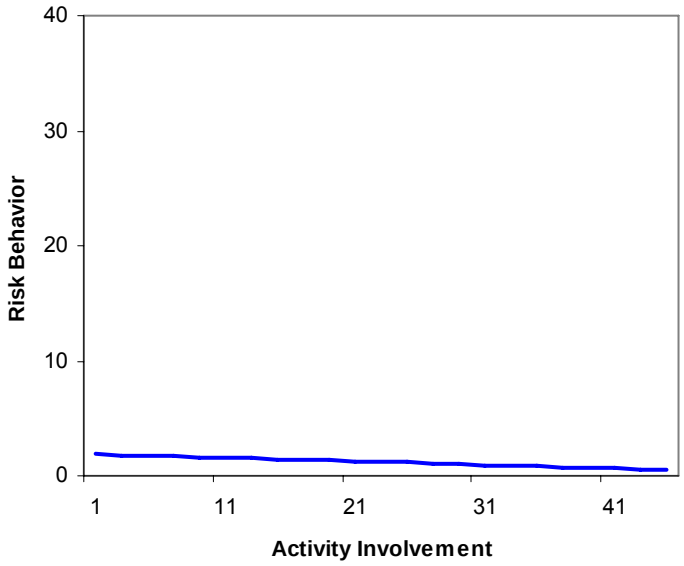

Figure 58. Predicted values for risk behavior and activity involvement for medium accessibility girls

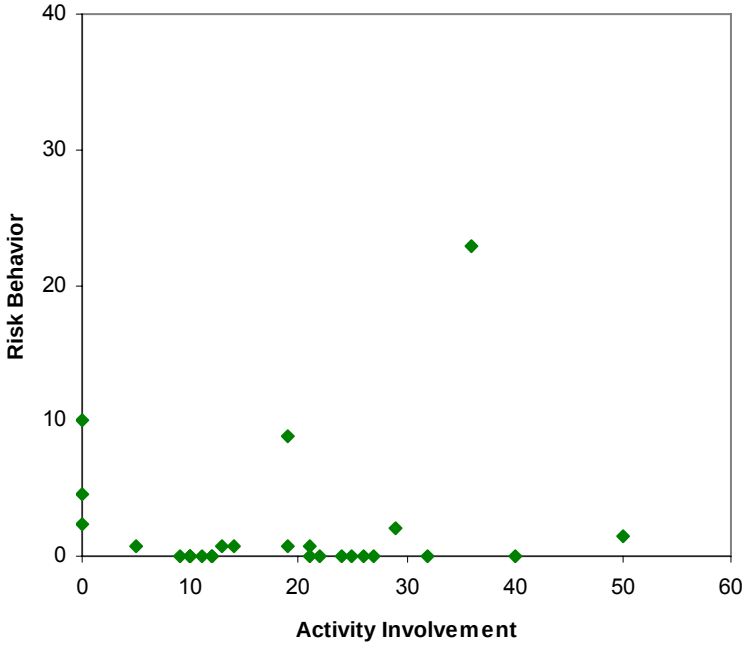

Figure 59. Actual data points for risk behavior and activity involvement for high accessibility girls

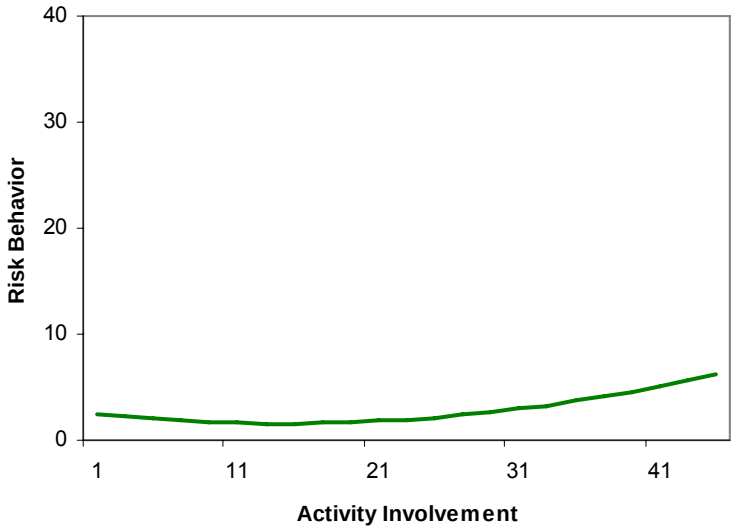

Figure 60. Predicted values for risk behavior and activity involvement for high accessibility girls

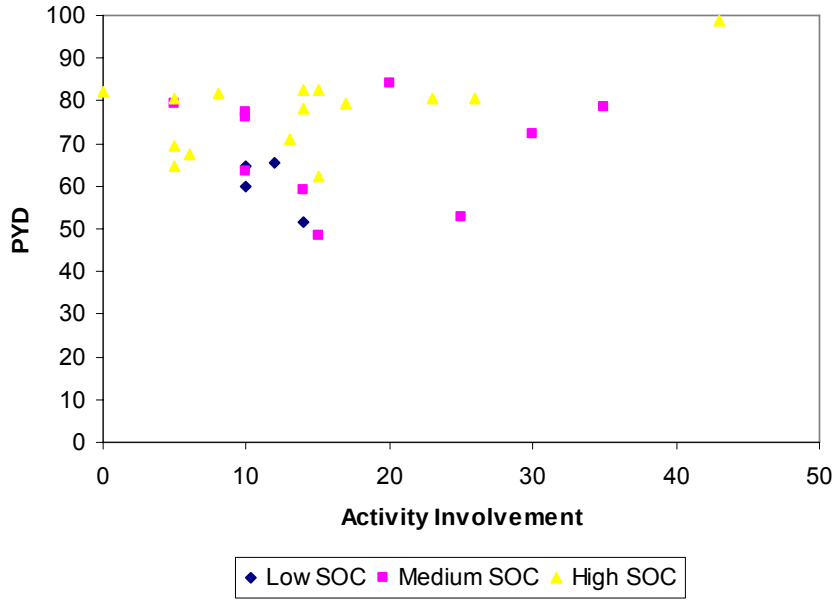

Figure 61. Actual data points for PYD predicted by activity involvement and self-regulation (SOC) for boys living in low collective activity neighborhoods

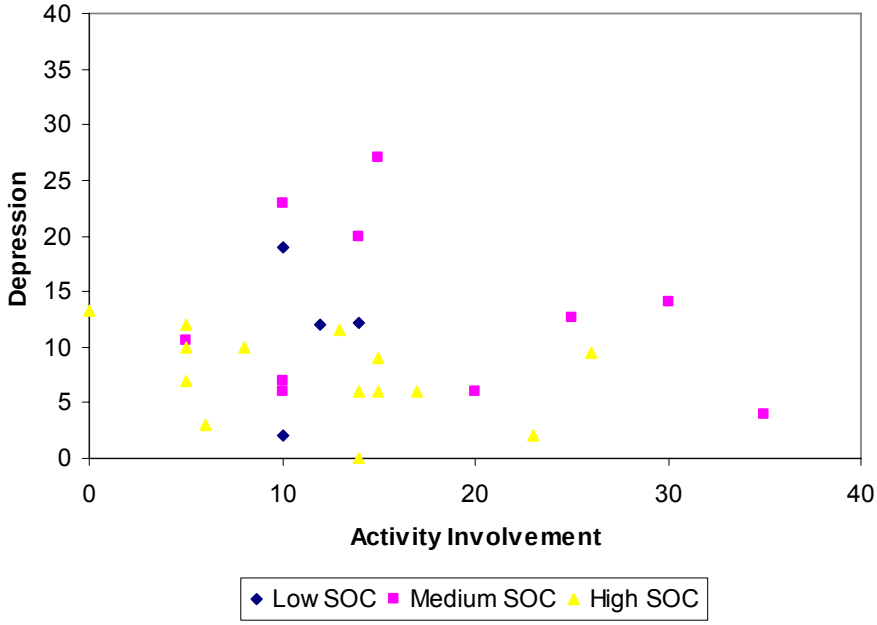

Figure 62. Actual data points for depression predicted by activity involvement and self-regulation (SOC) for boys living in low collective activity neighborhoods

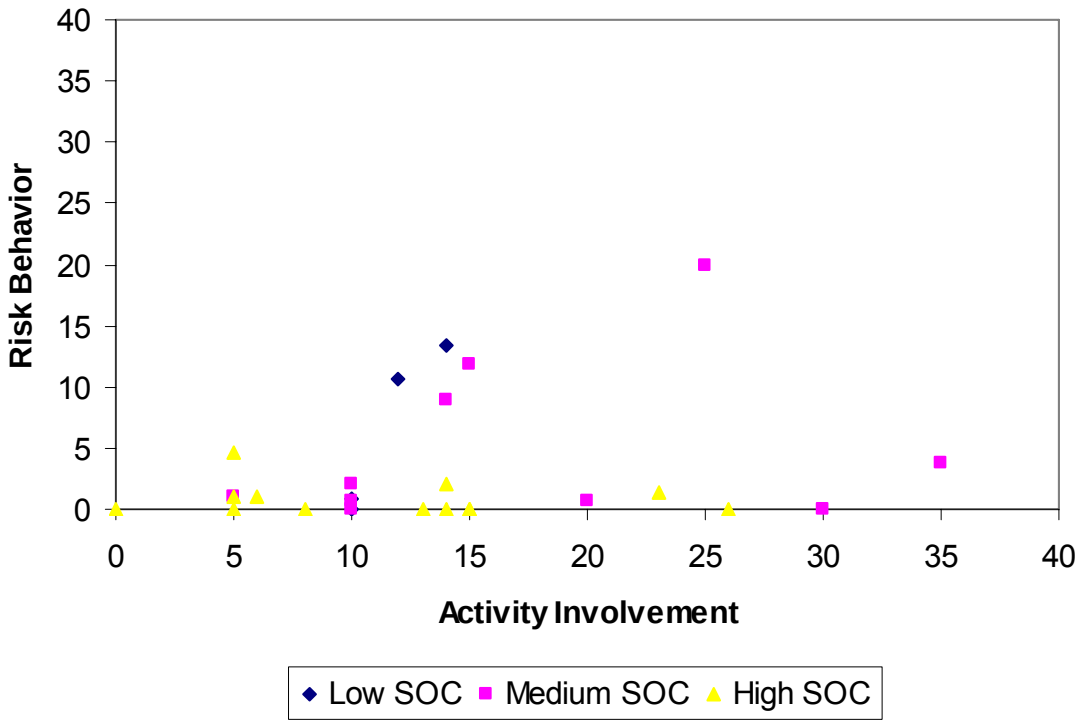

Figure 63. Actual data points for risk behavior predicted by activity involvement and self-regulation (SOC) for boys living in low collective activity neighborhoods

REFERENCES

Allard, S. W., Tolman, R. M., & Rosen, D. (2003). Proximity to service providers and service utilization among welfare recipients: The interaction of place and race. *Journal of Policy Analysis and Management, 22*(4), 599-613.

Baltes, P. B., Lindenberger, U., & Staudinger, U. M. (2006). Life span theory in developmental psychology. In R. M. Lerner (Ed.). *Theoretical models of human development*. Volume 1 of *Handbook of Child Psychology* (6th ed.) (pp. 569-664). Editors-in-Chief: W. Damon & R.M. Lerner. Hoboken, NJ: Wiley.

Barber, B. L., Eccles, J. S., & Stone, M. R. (2001). Whatever happened to the jock, the brain, and the princess?: Young adult pathways linked to adolescent activity involvement and social identity. *Journal of Adolescent Research, 16*(5), 429-455.

Benson, P. L. (1997). *All kids are our kids: What communities must do to raise caring and responsible children and adolescents*. San Francisco: Jossey-Bass.

Benson, P.L. (2007). Developmental assets: An overview of theory, research, and practice. In R. K. Silbereisen, & R. M. Lerner (Eds.). *Approaches to positive youth development* (pp. 33-58). Los Angeles: Sage Publications.

Benson, P. L., Scales, P. C., Hamilton, S. F., & Sesma, J., A. (2006). Positive youth development: Theory, research and applications. In R.M. Lerner (Ed.). *Theoretical models of human development*. Volume 1 of

Handbook of Child Psychology (6th ed.) (pp. 894-941). Editors-in-Chief: W. Damon & R.M. Lerner. Hoboken, NJ: Wiley.

Benson, P. L., Scales, P. C., Leffert, N., & Roehlkepartain, E. (1999). *The fragile foundation: The state of developmental assets among American youth*. Minneapolis: Search Institute.

Bradshaw, C. P., Brown, J. S., & Hamilton, S. F. (2006). Applying positive youth development and life-course research to the treatment of adolescents involved with the judicial system. *Journal of Addictions and Offender Counseling, 27*(1), 2-16.

Bronfenbrenner, U., & Morris, P.A. (1998). The ecology of developmental processes. In R. M. Lerner (Ed.). *Theoretical models of human development*. Volume 1 of *Handbook of Child Psychology* (6th ed.) (pp. 993-1028). Editors-in-Chief: W. Damon & R.M. Lerner. Hoboken, NJ: Wiley.

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner (Ed.). *Theoretical models of human development*. Volume 1 of *Handbook of Child Psychology* (6th ed.) (pp. 793-828). Editors-in-Chief: W. Damon & R.M. Lerner. Hoboken, NJ: Wiley.

Brooks-Gunn, J., Duncan, G. J., Klebanov, P. K., & Sealand, N. (1993). Do neighborhoods influence child and adolescent development? *American Journal of Sociology, 99*(2), 353-395.

Ceci, S. J., & Papierno, P. B. (2005). The rhetoric and reality of gap closing: When the "have-nots" gain but the "haves" gain even more. *American Psychologist, 60*(2), 149-160.

Costa, F. M., Jessor, R., Turbin, M., Dong, Q., Zhang, H., & Wang, C. (2005). The role of social contexts in adolescence: Context protection and context risk in the United States and China. *Applied Developmental Science, 9*(2), 67-85.

Damon, W. (2004). What is positive youth development? *Annals of the American Academy of Political and Social Science, 591*, 13-24.

Dworkin, J. B., Larson, R. W., & Hansen, D. (2003). Adolescents' accounts of growth experiences in youth activities. *Journal of Youth and Adolescence, 32*(1), 17-26.

Eccles, J., & Gootman, J. (Eds.). (2002). *Community programs to promote youth development*. Washington, DC: National Academy Press.

Eccles, J. S., & Barber, B. L. (1999). Student council, volunteering, basketball, or marching band: What kind of extracurricular involvement matters? *Journal of Adolescent Research, 14*(1), 10-43.

Eisenberg, N., Fabes, R. A., Murphey, B. C., Karbon, M., Smith, M., & Maszk, P. (1996). The relations of children's dispositional empathy-related responding to their emotionality, regulation, and social functioning. *Developmental Psychology, 32*, 195-209.

Elkind, D. (2001). *The hurried child*. Cambridge. MA: Da Capo Press.

Fauth, R. C., Roth, J. L., & Brooks-Gunn, J. (2007). Does the neighborhood context alter the link between youth's after-school time activities and developmental outcomes? A multilevel analysis. *Developmental Psychology, 43*(3), 760-777.

Fredricks, J. A., & Eccles, J. S. (2006). Extracurricular invovlement and adolescent adjustment: Impact of duration, number of activities, and

breadth of participation. *Applied Developmental Science, 10*(3), 132-146.

Gage, J. C., Overpeck, M. D., Nansel, T. R., & Kogan, M. D. (2005). Peer activity in the evenings and participation in aggressive and problem behaviors. *Journal of Adolescent Health, 37*, 517.e517-517.e514.

Gestsdottir, S., & Lerner, R. M. (2007). Intentional self-regulation and positive youth development in early adolescence: Findings from the 4-H study of positive youth development. *Developmental Psychology, 43*(2), 508-521.

Giles-Corti, B., & Donovan, R. J. (2002). Socioeconomic status differences in recreational physical activity levels and real and perceived access to a supportive physical environment. *Preventive Medicine, 35*, 601-611.

Guest, A., & Schneider, B. (2003). Adolescents' extracurricular participation in context: The mediating effects of schools, communities, and identity. *Sociology of Education, 76*(2), 89-109.

Hamilton, S. F., Hamilton, M. A., & Pittman, K. (2004). Principles for youth development. In S. F. Hamilton & M. A. Hamilton (Eds.), *The youth development handbook: Coming of age in American communities*. Thousand Oaks: Sage Publications.

Hansen, D., Larson, R. W., & Dworkin, J. B. (2003). What adolescents learn in organized youth activities: A survey of self-reported developmental experiences. *Journal of Research on Adolescence, 13*(1), 25-55.

Harter, S. (1983). Supplementary description of the Self-Perception Profile for Children: Revision of the Perceived Competence Scale for Children: University of Denver.

Jelicic, H., Bobek, D. L., Phelps, E., Lerner, R. M., & Lerner, J. V. (2007). Using positive youth development to predict contribution and risk behaviors in early adolescence: Findings from the first two waves of the 4-H study of positive youth development. *International Journal of Behavioral Development, 31*(3), 263-273.

Larson, R. W., Dworkin, J. B., & Gillman, S. (2001). Facilitating adolescents' constructive use of time in one-parent families. *Applied Developmental Science, 5*(3), 143-157.

Larson, R. W., Hansen, D., & Moneta, G. (2006). Differing profiles of developmental experiences across types of organized youth activities. *Developmental Psychology, 42*(5), 849-863.

Leffert, N., Benson, P., Scales, P. C., Sharma, A. R., Drake, D. R., & Blyth, D. A. (1998). Developmental assets: Measurement and prediction of risk behaviors among adolescents. *Applied Developmental Science, 2*(4), 209-230.

Lerner, R.M. (2004). *Liberty: Thriving and civic engagement among America's youth*. Thousand Oaks: Sage Publications.

Lerner, R.M. (2005, September). *Promoting positive youth development: Theoretical and empirical bases*. White paper prepared for the Workshop on the Science of Adolescent Health and Development, National Research Council/Institute of Medicine. Washington, D.C.: National Academies of Science.

Lerner, R.M. (In press). The contributions of Paul B. Baltes to the transformation of the field of child development: From developmental psychology to developmental science. *Research in Human Development*.

Lerner, R.M., Lerner, J. V., Almerigi, J. B., Theokas, C., Phelps, E., Gestsdottir, S., et al. (2005). Positive youth development, participation in community youth development programs, and community contributions of fifth-grade adolescents: Findings from the first wave of the 4-H study of positive youth development. *Journal of Early Adolescence, 25*(1), 17-71.

Lerner, R. M., Jelicic, H., Smith, L. M., & Alberts, A. E. (2006). Young people are resources to be developed: Adult-youth relations, skill-building, and civic engagement. In E. G. Clary & J. E. Rhodes (Eds.), *Mobilizing adults for positive youth development: Lessons from the behavioral sciences on promoting socially valued activities*. Minneapolis, MN: Search Institute.

Leventhal, T. & Brooks-Gunn, J, (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin, 126*(2), 309-337.

Leventhal, T., Dupere, V., & Brooks-Gunn, J. (In press). Neighborhood influences on adolescent development. In R.M. Lerner & L. Steinberg (Eds.). *Handbook of Adolescent Psychology (3rd Ed.)*. Hoboken, NJ: Wiley.

Little, T.D., Card, N.A., Preacher, K.J., & McConnell, E. (In preparation). Modeling longitudinal data from research on adolescence. In R.M. Lerner & L. Steinberg (Eds.). *Handbook of Adolescent Psychology (3rd Ed.)*. Hoboken, NJ: Wiley.

Luthar, S. S. (2003). The culture of affluence: Psychological costs of material wealth. *Child Development, 74*(6), 1581-1593.

Luthar, S. S., & Latendresse, S. J. (2005a). Comparable "risks" at the socioeconomic status extremes: Preadolescents' perceptions of parenting. *Development and Psychopathology, 17*, 207-230.

Luthar, S. S., Shoum, K. A., & Brown, P. J. (2006). Extracurricular involvement among affluent youth: A scapegoat for "ubiquitous achievement pressures"? *Developmental Psychology, 42*(3), 583-597.

Mahoney, J. L., Harris, A. L., & Eccles, J. S. (2006). Organized activity participation, positive youth development, and the over-scheduling hypothesis. *Social Policy Report, 20*(4).

Mahoney, J. L., Larson, R. W., & Eccles, J. S. (Eds.). (2005). *Organized acrivities as contexts of development: Extracurricular activities, after-school and community programs*. Mahwah, NJ: Lawrence Erlbaum & Associates.

Mahoney, J. L., Larson, R. W., Eccles, J. S., & Lord, H. (2005). Organized activities as developmental contexts for children and adolescents. In J. L. Mahoney, R. W. Larson & J. S. Eccles (Eds.), *Organized activities as contexts of development: Extracurricular activities, after-school and community programs* (pp. 3-22). Mahwah, NJ: Lawrence Erlbaum & Associates.

Marsh, H. W. (1992). Extracurricular activities: Beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology, 84*(4), 553-562.

Marsh, H. W., & Kleitman, S. (2002). Extracurricular school activities: The good, the bad, and the nonlinear. *Harvard Educational Review, 72*(4), 464-511.

Monitoring the Future (2000). *National survey on drug use, 1975-2000*. Bethesda, MD: National Institute on Drug Abuse.

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial-behavior: A developmental taxonomy. *Psychological Review, 100*(4), 674-701.

Pedersen, S. (2005). Urban adolescents “out-of-school activity profiles": Associations with youth, family, and school transition characteristics. *Applied Developmental Science, 9*(2), 107-124.

Persson, A., Kerr, M., & Stattin, H. (2007). Staying in or moving away from structured activities: Explanations involving parents and peers. *Developmental Psychology, 43*(1), 197-207.

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385-401.

Roth, J., Brooks-Gunn, J., Murray, L., & Foster, W. (1998). Promoting healthy adolescents: Synthesis of youth development program evaluations. *Journal of Research on Adolescence, 8*(4), 423-459.

Roth, J. L., & Brooks-Gunn, J. (2003b). Youth development programs: Risk, prevention and policy. *Journal of Adolescent Health, 32*(3), 170-182.

Sampson, R.J., Morenoff, J.D., & Earls, F. (1999). Beyond social capital: Spatial dynamics of collective efficacy for children. *American Sociological Review, 64*, 633-660.

Sampson, R.J., Raudenbush, S.W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*, 918-924.

Sharp, E. H., Coatsworth, J. D., Darling, N., Cumsille, P., & Ranieri, S. (2007). Gender differences in the self-defining activities and identity experiences of adolescents and emerging adults. *Journal of Adolescence, 30*, 251-269.

Small, S. A., & Rodgers, K. B. (1995). Teen Assessment Project (TAP) survey question bank: University of Wisconsin-Madison.

Sucoff, C. A., & Upchurch, D. M. (1998). Neighborhood context and the risk of childbearing among metropolitan-area black adolescents. *American Sociological Review, 63*(4), 571-585.

Swisher, R., & Whitlock, J. L. (2004). How neighborhoods matter for youth development. In S. F. Hamilton & M. A. Hamilton (Eds.), *The youth development handbook: Coming of age in American communities* (pp. 216-238). Thousand Oaks: Sage Publications.

Theokas, C., Almerigi, J. B., Lerner, R. M., Dowling, E. M., Benson, P. L., Scales, P. C., et al. (2005). Conceptualizing and modeling individual and ecological asset components of thriving in early adolescence. *Journal of Early Adolescence, 25*(1), 113-143.

Theokas, C., Lerner, J.V., Phelps, E., & Lerner, R.M. (2006). Cacophony and change in youth after school activities: Findings from the 4-H study of positive youth development. *Journal of Youth Development, 1*(1).

Theokas, C., & Lerner, R. M. (2006). Observed ecological assets in families, schools, and neighborhoods: Conceptualization, measurement, and relations with positive and negative developmental outcomes. *Applied Developmental Science, 10*(2), 61-74.

Wilson, W.J. (1997). *When work disappears: The world of the new urban poor*. New York: Knopf.

Zaff, J. F., Moore, K. A., Papillo, A. R., & Williams, S. (2003). Implications of extracurricular activity participation during adolescence on positive outcomes. *Journal of Adolescent Research, 18*(6), 599-630.

Zarrett, N., Peltz, J., Fay, K., Li, Y., Lerner, J. V., & Lerner, R. M. (2007). Sports and youth development programs: Theoretical and practical implications of early adolescent participation in multiple instances of structured out-of-school (OST) activity. *Journal of Youth Development, 2*(1).

Zimmerman, S.M., Phelps, E., & Lerner, R.M. (2007). Intentional self-regulation in early adolescence: Assessing the structure of selection, optimization, and compensation processes. *European Journal of Developmental Science, 1*(3), 272-299.