2009

Precursors to adolescents' dating violence perpetration and healthy romantic relationships

Melissa P. Schnurr
Iowa State University

Precursors to adolescents' dating violence perpetration and healthy romantic relationships

by

Melissa P. Schnurr

A dissertation submitted to the graduate faculty

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Human Development and Family Studies

Program of Study Committee:
Brenda J. Lohman, Major Professor
Megan J. Murphy
Jacques D. L. Lempers
Kandauda A.Wickrama
Fred O. Lorenz

Iowa State University

Ames, Iowa

2009

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 2:

CHAPTER 3:

LIST OF TABLES

CHAPTER 2:

CHAPTER 3:

CHAPTER I: GENERAL INTRODUCTION

Introduction

Dating violence perpetration among adolescents is a serious problem with estimates of 10 to 36.5% of adolescents perpetrating violence against a romantic partner (Ely, Dulmus, & Wodarski, 2002). Despite this staggering rate of dating violence perpetration, many adolescents develop healthy romantic relationships characterized by high quality, including satisfaction and a sense of support from his or her partner, (Bouchey, 2007; Seiffge-Krenke, 2003) and a lack of dating violence. In order to decrease the occurrence of dating violence perpetration as well as increase the development of healthy romantic relationships among adolescents, the precursors to both dating violence perpetration and healthy romantic relationship development must be understood. With a better understanding, efforts to educate young adolescents about dating violence and healthy relationships will be enhanced. Indeed, educating adolescents about such topics is important because the capabilities needed to form healthy romantic relationships carry into adult social, romantic, and parent-child relationships (Steinberg, 2008).

The current literature on correlates of dating violence perpetration among adolescents identifies several risk factors associated with adolescents and their families, schools, and neighborhoods. Specifically, adolescent risk factors for dating violence perpetration include: drug and alcohol use (LaVoie, Robitaille, & Hebert, 2000; O'Donnell, Stueve, Myint-U, Duran, Agronick, & Wilson-Simmons, 2006), mental health problems (Hilton & Harris, 2005; McCloskey & Lichter, 2003; Rosenbaum & Leisring, 2003), and externalizing behaviors (O'Donnell et al., 2006). Risk factors associated with adolescents' families include: parental domestic violence (Markowitz, 2001; Rosenbaum & Leisring, 2003; Wolf & Foshee, 2003), mother-adolescent hostility (O'Keefe, 1994), father-adolescent hostility (Shek & Ma, 2001), and low parental monitoring (Lavoie, Hebert, Tremblay, Vitaro, Vezina, & McDuff, 2002). School risk factors that are positively associated with adolescents' dating violence perpetration include: academic difficulties (Bergman, 1992; Cleveland, Herrera, & Stuewig, 2003), low involvement in school activities (Ellickson & McGuigan, 2000; Thomas & Smith, 2004), and involvement with antisocial peers (Schnurr & Lohman, 2008). Finally,

adolescents who live in neighborhoods characterized by residential instability (Gorman-Smith & Tolan, 1998; Margolin & Gordis, 2000), concentrated economic disadvantage and racial segregation (Bandura, 1977; Kowaleski-Jones, 2000; Shaw & McKay, 1942) as well as neighborhood crime (Gorman-Smith & Tolan, 1998) are at increased risk for perpetrating violence.

On the other hand, the literature also includes several protective factors that are associated with increased adolescent well-being and prosocial behavior, including correlates of healthy romantic relationship development. Specifically, adolescents who experience: involved fathers (Harris, Furstenberg, Marmer, 1998; Veneziano, 2000), high levels of parental monitoring (Brookmeyer, Henrich, & Schwab-Stone, 2005; Gorman-Smith, Henry, & Tolan, 2004), warm relationships with their mothers (Brookmeyer et al.; Gorman-Smith et al., 2004; Kliewer et al., 2004), a structured home environment (Crosnoe, Erickson, Dornbusch, 2002; Hair, Moore, Garrett, Ling, & Cleveland, 2008; Kerr, Beck, Shattuck, Kattar, & Uriburu, 2003), high academic achievement (Crosnoe et al.; Hart, O'Toole, Price-Sharts, & Shaffer, 2007), extracurricular activity involvement (Bartko & Eccles, 2003; Fredricks & Eccles, 2005), a cohesive neighborhood (Quane & Rankin, 2006; Rankin & Quane, 2002), and positive neighborhood friends (Barry & Wentzel, 2006) exhibit more prosocial behaviors and more positive well-being than adolescents who do not experience these protective factors. In addition, adolescents who have a warm relationship with their mothers (Furman, Simon, Shaffer, & Bouchey, 2002; Seiffge-Krenke, 2003; Seiffge-Krenke, Shulman & Klessinger, 2001) and have positive neighborhood friends (Connolly, Furman, & Konarski, 2000; Shulman & Scharf, 2000) are more likely to develop healthy romantic relationships.

The following two studies were an attempt to add to the current literature base on adolescents' dating violence perpetration and healthy romantic relationship development. Results from both studies will be used to inform education efforts to decrease risks for dating violence perpetration and increase healthy romantic relationship development among adolescents. The two separate, but complimentary research projects are outlined and discussed in more detail in the following sections.

Dissertation Organization

The organization of this dissertation follows the alternative dissertation format. Chapter 2 contains the first research article titled, “The Impact of Collective Efficacy on Risks for Adolescents’ Dating Violence Perpetration”. A second research article follows in Chapter 3 and is titled, “Adolescents’ Development of Healthy Romantic Relationships: The Protective Role of Family, School, and Neighborhood”. These two articles are then reviewed in a brief summary chapter.

The first article, Chapter 2, simultaneously examined adolescent, family, school, and neighborhood risk factors experienced in early adolescence that may increase adolescents’ likelihood of perpetrating dating violence in late adolescence. Moreover, how perceived neighborhood collective efficacy may buffer the impact of these risk factors to reduce the likelihood of later dating violence perpetration in adolescents’ romantic relationships was assessed. It was hypothesized that the early risk factors would be positively linked to later dating violence perpetration and that collective efficacy would buffer this negative relationship to reduce dating violence perpetration in late adolescence. This study advances existing literature on adolescents’ dating violence perpetration by simultaneously examining several contextual factors in the analyses and using longitudinal data to discover early precursors to later dating violence perpetration.

The second article, Chapter 3, examined how family, school, and neighborhood factors during middle adolescence may serve as protective pathways to later healthy romantic relationships among a sample of low-income, minority adolescents using structural equation modeling (SEM). Specifically, the direct relationship between exposure to neighborhood risks during early adolescence and development of healthy romantic relationships in late adolescence was explored. In addition, the family, school, and neighborhood protective factors from middle adolescence were examined as mediators. It was hypothesized that neighborhood risks would be negatively associated with healthy romantic relationship development and the effect of early exposure to neighborhood risks would be mediated through positive family, school, and neighborhood characteristics to result in healthy romantic relationships among late adolescents. The present study advances existing literature

on adolescents' romantic relationships by including several contextual factors in the analyses, utilizing SEM to include multiple indicators of healthy romantic relationships, and discovering how early exposure to neighborhood risks is transmitted through middle adolescence protective factors to result in later healthy romantic relationships using longitudinal data.

Finally, Chapter 4 contains a general discussion of both articles. An overall summary of the main findings from both studies is given. Last, general conclusions are discussed in relation to dating violence prevention and relationship education programs.

CHAPTER II: THE IMPACT OF COLLECTIVE EFFICACY ON RISKS FOR ADOLESCENTS' DATING VIOLENCE PERPETRATION

A paper to be submitted to *The Journal of Research on Adolescence*

Melissa P. Schnurr and Brenda J. Lohman

Abstract

The purpose of this study was two-fold: 1) to identify how adolescent, family, school, and neighborhood risk factors were related to perpetration of dating violence among adolescents; and 2) to assess how perceived neighborhood collective efficacy may reduce or exacerbate the relationship between each of the risk factors and adolescents' perpetration of dating violence. Three waves of data from the *Welfare, Children, and Families: A Three-City Study* were used (N = 765; Ages 16-20 at Wave 3). Lagged Ordinary Least Squares multiple regression techniques were utilized to examine the link between perpetration of dating violence and the risk factors from multiple contexts. For the total sample, drug and alcohol use, low parental monitoring, academic difficulties, and involvement with antisocial peers were significant early risk factors for dating violence perpetration in late adolescence. Furthermore, males, females, and black males and females were more likely to perpetrate dating violence in late adolescence if they had prior involvement with antisocial peers. Second, for males, black males, and Hispanic females, early drug and alcohol use increased their dating violence perpetration in late adolescence. Third, low parental monitoring for females, depressive symptoms for males, externalizing behaviors for black females, and mother's experiences with domestic violence for Hispanic females were risk factors for dating violence perpetration. Finally, perceived neighborhood collective efficacy buffered the relationship between early academic difficulties and later dating violence perpetration for Hispanic males. Implications for the prevention of perpetration of dating violence are explored.

Introduction

Adolescent dating violence is as much a societal problem as domestic violence, with rates of each ranging from 10 to 36.5% (Ely, Dulmus, & Wodarski, 2002). Dating violence is defined as "physical assault or acts of bodily harm, including psychological and emotional

abuse, verbal or implied, that take place in private or in social situations" (Ely et al., p. 34), which primarily differs from domestic violence in that the dating couple is not bound by blood or law (Burgess & Roberts, 2002). Research indicates that males and females are equally likely to be involved in dating violence; however, sex differences exist in the types of perpetration committed. Females are much more likely to pinch, slap, scratch, or kick, whereas males are more likely to punch and force their girlfriends into unwanted sexual activity (Molidor & Tolman, 1998). Consequently, females are typically more seriously injured compared to males (Ely et al.; Molidor & Tolman; Munoz-Rivas, Grana, O'Leary, & Gonzalez, 2007; Wekerle & Wolfe, 1999). Because of the prevalence of dating violence among adolescent males and females, as well as the negative consequences it has on individuals' well-being and future social relationships, it is important to explore the occurrence further.

As detailed below, researchers have established the link between several adolescent, family, and school risk factors and adolescents' perpetration of dating violence. However, this body of work often does not include other environmental aspects, such as positive neighborhood environments, that adolescents experience on a daily basis. Thus, this study explored how mothers' perceptions of neighborhood collective efficacy in middle adolescence may buffer the impact of exposure to adolescent, family, school, and neighborhood risk factors during early adolescence and, in turn, reduce the likelihood of violence perpetration in late adolescents' romantic relationships.

Neighborhood collective efficacy is social cohesion that is created when neighbors join together to intervene on negative acts on behalf of the common good (Burton & Jarrett, 2000; Ohmer & Beck, 2006; Sampson, Raudenbush, & Earls, 1997); in this study, it is proposed that the belief in the "common good" motivates the reduction in adolescents' perpetration of dating violence. There are several factors that contribute to collective efficacy. For example, the process of creating cohesion, which leads to social control, takes time and thus requires residents to be stably living in the neighborhood (Sampson, Morenoff, & Earls, 1999; Sampson et al., 1997). The longer the residents of the neighborhood are together, the greater the likelihood cohesion, and thus collective efficacy will develop. On the other hand, living

in neighborhoods where residents come and go undermines collective efficacy. In addition to residential instability, factors that reduce the likelihood of collective efficacy developing are racial segregation and concentrated economic disadvantage because these factors isolate residents and lower their accessibility to resources like community centers, which promote collective efficacy (Franzini, Caughy, Spears, Eugenia, & Esquer, 2005; Sampson, Morenoff, & Gannon-Rowley, 2002; Sampson et al., 1997). According to social disorganization theory, concentrated economic disadvantage, residential instability, and racial segregation reduce the neighborhood capacity to regulate local crime (Shaw & McKay, 1942). Thus, each of these neighborhood risks, along with mothers' perceptions of neighborhood violent crime, were included in the analyses as early risk factors for adolescents' perpetration of dating violence.

To this end, using lagged ordinary least squares (OLS) hierarchical regression, the proposed study aimed to extend prior work by simultaneously assessing adolescent, family, school, and neighborhood microsystem risk factors experienced in early adolescence that may increase adolescents' likelihood of later perpetrating dating violence. Moreover, how perceived neighborhood collective efficacy may buffer the impact of these risk factors to reduce the likelihood of later dating violence perpetration in adolescents' romantic relationships was assessed. Not only were models analyzed for the full sample of low-income, predominately minority adolescents, who live in low-income neighborhoods in three cities, but models were also examined by adolescents' sex, race, and race by sex; past studies have identified the importance of accounting for the unique experiences of males, females, black, and Hispanic adolescents (Schnurr & Lohman, 2008).

Theoretical Framework

Bronfenbrenner's bioecological model, as well as a risk and resiliency framework, was used to guide the current research. The bioecological model posits that adolescents develop within families, and that their families function within communities (Wickrama & Bryant, 2003). Thus, multilevel processes may combine to influence adolescents' development. Specifically, the original bioecological model posed that there were four hierarchical systems that act and react on each other: micro-, meso-, exo-, and macrosystems (Bronfenbrenner, 1989, 1993, 1999). A microsystem is the most basic interactional level. It is the pattern of

activities, roles, and interpersonal relations experienced by the individual in any given system (e.g., family, school, neighborhood). Specifically, it contains the factors within adolescents' immediate environments that induce or inhibit their personal characteristics to result in development (Bronfenbrenner, 1993). These factors directly affect the developing adolescent, and, in turn, may also be affected by the adolescent. In this study, three microsystems are highlighted – the adolescents' family, school, and neighborhood. The second system, the mesosystem involves interactions among settings. For example, for developing adolescents, the relationship between their family and neighborhood is a mesosystem. In this study, how neighborhood collective efficacy may buffer the relationship between adolescents' personal, family, and school risks and their dating violence perpetration is the focus. The next level, the exosystem, includes settings that affect the individual, but with which the individual does not interact directly (e.g., a parent's workplace). Finally, the macrosystem represents the broader social context such as cultural ideologies or values that may influence the developing adolescent. Assessing the impact of the exo- and macrosystems was beyond the scope of the current study.

Aspects of the risk and resiliency framework are useful to build on the bioecological model. A risk is considered any factor that leads to negative outcomes (Keyes, 2004). In this case, risk is represented by the various adolescent, family, school, and neighborhood factors described in the following paragraphs. Each of these factors increases the likelihood that an adolescent will perpetrate dating violence. The second part of the risk and resilience model is resilience, which are factors that protect adolescents from negative outcomes (Keyes). Neighborhood collective efficacy may buffer the risks associated with the individual adolescents and their surroundings to ultimately reduce their likelihood of perpetrating dating violence (Keyes). The use of both Bronfenbrenner's bioecological model and the risk and resilience framework provides a multi-context understanding of the mechanisms involved in the reduction of dating violence perpetration in adolescents' romantic relationships.

Figure 1 represents the proposed research framework. In the figure, adolescents' characteristics, along with the family, school, and neighborhood micro- and mesosystem

risks that they experienced in early adolescence are shown predicting their dating violence perpetration in late adolescence, specifically 6 years later.

As supported by past literature, the following adolescent characteristics have been linked to dating violence perpetration: race and sex, drug and alcohol use (LaVoie, Robitaille, & Hebert, 2000; O'Donnell, Stueve, Myint-U, Duran, Agronick, & Wilson-Simmons, 2006), symptoms of mental health problems (Hilton & Harris, 2005; McCloskey & Lichter, 2003; Rosenbaum & Leisring, 2003), and externalizing behaviors (O'Donnell et al.). Furthermore, several family microsystem factors have been linked to dating violence perpetration and other delinquent behaviors: mothers with less than a high school education (Foshee, Ennett Bauman, Benefield, & Suchindran, 2005), parental domestic violence (Markowitz, 2001; Rosenbaum & Leisring, 2003; Whitfield, Anda, Dube, & Felitti, 2003; Williams, Van Dorn, Hawkins, Abbott & Catalano, 2001; Wolf & Foshee, 2003), mother-adolescent hostility (Allen, Hauser, Eickholt, Bell, & O'Connor, 1994; Nix, Pinderhughes, Dodge, Bates, Pettit, McFadyen-Ketchum, 1999), father-adolescent hostility (Coley, 2003; Shek, 2005; Shek & Ma, 2001; Vazsonyi, 2003), and low parental monitoring (Chase, Treboux, & O'Leary, 2002; Lavoie, Hebert, Tremblay, Vitaro, Vezina, & McDuff, 2002; Mazefsky & Farrell, 2005).

Next, school microsystem factors have been linked to delinquent or antisocial behaviors: academic difficulties (Cleveland, Herrera, & Stuewig, 2003; Herrenkohl Maguin, Hill, Hawkins, Abbott, & Catalano, 2000), low involvement in school activities (Ellickson & McGuigan, 2000; Thomas & Smith, 2004), and involvement with antisocial peers (Farrington, 2005; Gifford-Smith, Dodge, Dishion, McCord, 2005). Finally, even though the neighborhood risks have not been directly linked to dating violence perpetration, they have been related to undermining social control (Pettit & McLanahan, 2003; Sampson et al., 1997, 1999) and violence (Gorman-Smith & Tolan, 1998; Margolin & Gordis, 2000) and are, therefore included in the model.

In addition, perceived neighborhood collective efficacy in middle adolescence is shown moderating the link between each of the early risk factors and later dating violence perpetration. Perceived neighborhood quality has been used in past research (Deng, Lopez, Roosa, Ryu, Burrell, Tein, & Crowder, 2006; Moore & Chase-Lansdale, 2001; Weden,

Carpiano, & Robert, 2008; Wen, Hawkley, & Cacioppo, 2006; Wilson, 1987), and has been examined in connection with partner violence and found a negative association between the two factors (Browning, 2002). Also, collective efficacy has been established as a protective factor for interpersonal violence (Almgren, 2005). Less research has examined the moderating effect of perceived neighborhood collective efficacy. It is plausible that perceived collective efficacy may buffer risks because neighborhoods with collective efficacy typically have residents who feel connected to and responsible for their neighborhood and its residents (Sampson et al., 1997). The perception of connection and responsibility translates into common values among residents and effective social control (Rankin & Quane, 2002; Sampson et al., 1997). This social control is not institutional control such as police and courts, but the capacity of a group to regulate its members according to desired principles to promote safe and orderly living environments, free of crime and interpersonal violence (Sampson et al., 1997). In particular, the sense of accountability and responsibility that collective efficacy imposes on neighborhood residents to behave in part for the common good may reduce the occurrence of adolescents' perpetration of dating violence given the aforementioned risks. Finally, the proposed model was analyzed for the total sample as well as separately by adolescents' sex, race, and sex by race to better understand how relationships may vary by each sub-sample to help custom fit dating violence prevention programs.

Indeed, research findings on adolescents' race and sex differences in dating violence perpetration are often mixed. For example, one study found that white adolescents perpetrate more violence in romantic relationships than black adolescents (O'Keefe, 1994), whereas other studies found that black adolescents perpetrate more dating violence than white adolescents (Foshee et al., 2005; Foshee, Linder, MacDougall, Bangdiwala, 2001; Malik, Sorenson, & Aneshensel, 1997; O'Keefe, 1997). Yet other studies comparing black and Hispanic males and females did not find ethnic differences in dating violence perpetration (O'Donnell et al., 2006; Schnurr & Lohman, 2008). With respect to sex, males were shown to be more likely to perpetrate dating violence than females (Doumas, Margolin, John, 1994; Foo & Margolin, 1995; Schwartz, O'Leary, & Kendziora, 1997); however, in more recent

years, females have been shown to perpetrate dating violence more often than males (Feiring, Deblinger, Hoch-Espada, & Haworth, 2002; Foshee, 1996; Kaura & Allen, 2004; Lichter & McCloskey, 2004; Schnurr & Lohman). This difference may be from the increased awareness and stigma of dating violence perpetration, decreasing males' likelihood to report perpetration, which makes it appear that females perpetrate more than males. In addition, little work has addressed how precursors to dating violence perpetration may vary across adolescents' sex or race (Schnurr & Lohman).

Central Aim and Hypotheses

Guided by Bronfenbrenner's concepts of the micro- and mesosystems from the bioecological theory and incorporating the risk and resilience framework, the central aim of this study was to understand how perceived neighborhood collective efficacy may moderate the relationships between exposure to adolescent, family, school, and neighborhood microsystem risks during early adolescence and dating violence perpetration during late adolescence. Based on the theoretical frameworks and literature reviewed above, two key hypotheses were posed.

1. The early adolescent, family, school, and neighborhood risk factors would be positively linked to adolescents' later dating violence perpetration. These factors include: drug and alcohol use, mental health problems, externalizing behaviors, parental domestic violence, mother-adolescent hostility, father-adolescent hostility, low parental monitoring, academic difficulties, low involvement with school activities, involvement with antisocial peers, residential instability, concentrated economic disadvantage, racial segregation, and neighborhood crime.
2. The middle adolescence neighborhood microsystem protective factor, perceived collective efficacy, would buffer the relationship between the early risk factors (detailed in Hypothesis 1) and adolescents' later dating violence perpetration.

The present study advances existing literature on adolescents' dating violence perpetration by including several contextual factors in the analyses and utilizing longitudinal data. No studies have had such a rich array of relevant covariates and examined the interactions between the multiple contexts of adolescents' lives – adolescent, family, school,

and neighborhood risks with a single protective factor, perceived collective efficacy. In addition, many studies that examine risk factors for dating violence perpetration use cross-sectional data (see reviews by Carlson, 2000; Herrenkohl, Sousa, Tajima, Herrenkohl, & Moylan, 2008); therefore, developmental processes and the long-term impact of these risks are ignored. Thus, these hypotheses were assessed using longitudinal data from *Welfare, Children, and Families: A Three-City Study.* The longitudinal nature of the *Three-City Study* allows for a more thorough understanding of the complex relationships that exist among adolescents' family, school, and neighborhood environments, and how they interact to reduce the likelihood of dating violence perpetration in romantic relationships despite several risk factors.

Methods

Sample

All three waves of data from the survey component of *Welfare, Children, and Families: A Three-City Study* were utilized in the current study. The *Three-City Study* is a household-based, stratified random-sample of over 2,000 low-income children and their caregivers in low-income neighborhoods in Boston, Chicago, and San Antonio. In 1999, over 40,000 households were screened, with a 90% response rate, by professionally trained interviewers. Eligibility was based on age of the children in the household, race, family income, and marital status. In selected families with household incomes of 200% or less than the poverty line, interviewers randomly selected one focal child per family, and invited the focal child and his or her primary female caregiver to participate. This focal child was either between the ages of birth to 5 or 10 to 15 years at wave 1. Out of these selected families, 82% agreed to participate in the study, resulting in an overall response rate of 74%. For further sampling details see Winston and colleagues (1999). An average of 16 months after the first wave of data collection in 1999, approximately 88% of the families completed a second interview in 2001. A third interview occurred four years later in 2005, with an overall retention rate of 80%.

For this study, the original sample of early adolescents who were aged 10 to 15 years in 1999 (M = 11.91, SD = 1.42; N = 1158) was the focus. Of the original 1160 youth from wave

1, 1046 were interviewed an average of 16 months later in wave 2 (90%), and 929 were interviewed four years later in 2005 during wave 3 (80%). Thus, the early adolescents were now late adolescents and ranged in age from 16 to 20 years (M = 17.81; SD = 1.50). Only youth who had been in a romantic relationship completed the dating violence section during the wave 3 interview (N = 765; 82% of wave 3 sample). Thus, 67% of the original adolescents who were surveyed in wave 1 were assessed in the present study. Finally, attrition analyses were conducted to determine whether adolescents assessed in the present analysis vary on key risk factors and neighborhood characteristics compared to those adolescents who were only interviewed in wave 1. Overall, adolescents did not vary on 13 of 15 of the key dimensions studied, including drug and alcohol use, externalizing behaviors, academic difficulties, and involvement with antisocial peers. However, adolescents who participated in wave 3 unexpectedly had higher anxiety and depressive symptoms than those who did not participate.

Table 1 includes a sample description of adolescents' race, sex, and maternal education. The sample is predominately non-Hispanic black and Hispanic, and is 53% female. Of the 765 adolescents in the current sample, over 90% of the caregivers reporting were the biological mothers in wave 1 and 87% in wave 2. In just over half of these households, the mother did not have a high school diploma. Descriptive statistics for all continuous predictors and dating violence perpetration are shown in Table 2. Note that there is little variation in the neighborhood microsystem risk variables; implications are discussed below in the Measures section under the following subheading: *2000 U. S. Decennial Census variables.* Finally, correlations among study constructs are displayed in Table 3.

Procedure

In wave 1, interviewers selected one focal child and his/her caregiver from each of the eligible households to complete cognitive assessments and in-person interviews. These participants were then interviewed at each data collection period. Adolescents and caregivers completed surveys using CAPI, Computer Assisted Personal Interview. CAPI allows trained field interviewers to enter responses into a laptop computer during the interview process. When answering potentially sensitive questions like those related to domestic violence,

perpetration of dating violence, sexuality, or drug and alcohol use, adolescents and mothers used an Automated Computer Assisted Survey Interview (ACASI), which allows respondents to enter answers directly into the laptop computer while listening to questions on headphones. The use of ACASI has been shown to increase the validity of reporting on sensitive topics (Turner et al., 1998). Adolescents' interviews lasted approximately 30 minutes and took place separate from their mothers' interviews. At each data collection period, mothers participated in two-hour interviews, which asked questions about themselves, their families, households, and children.

Relevant to this study, mothers answered the same set of questions about domestic violence, family processes, neighborhood characteristics, and demographics in waves 1, 2, and 3. Adolescents were asked the same set of questions about their relationships with their mothers and fathers in all three waves. In wave 2, an additional set of questions regarding the teens' relationships with their peers was added. These questions were also asked at the final wave of data collection. Finally, in wave 3, a more explicit assessment of their romantic relationships, including involvement with dating violence, was examined. To assess a longitudinal family process model, constructs assessed in wave 1 (1999) were used for all predictor variables except for involvement with antisocial peers, which was not measured in wave 1. Instead, the wave 2 (2001) measurement of involvement with antisocial peers was utilized in the present analyses. Furthermore, collective efficacy, the moderator in the analyses, was measured in wave 2 (2001), and dating violence perpetration was assessed in wave 3 (2005).

Measures

Dependent Variable

Dating violence perpetration. To maximize the understanding of dating violence exposure and perpetration in these low-income youths' lives, *Three-City* investigators in wave 3 (the final wave of data collection) chose to ask about all past romantic relationships, rather than just current romantic relationships. Thus, using ACASI, a modified version of the Conflict Tactics Scale (CTS; Straus, 1979) was used to assess their experiences with dating violence perpetration and victimization during any current or past romantic relationship.

Specifically, eight items assessed perpetration of dating violence by asking if the adolescent had ever threatened, hit, kicked, or beaten their partner, for example, using 1 (*yes*) and 0 (*no*) responses. Items were summed with higher scores reflecting more perpetration ($\alpha = .69$).

Independent Variables

Demographics[1]

Race and sex. Adolescents' race and sex were obtained at wave 1. Three categories were created to represent the adolescent's race: non-Hispanic black, Hispanic, and non-Hispanic white and other races. In the analyses, the referent group was non-Hispanic black. Adolescents' sex was represented with one dichotomous variable, with a 1 representing a female.

Maternal education. A dichotomous variable was created to assess maternal education status at wave 1 with a 1 representing less than a high school education and a 0 representing a high school education or above.

Early Adolescent Risk Factors

Drug and alcohol use. In wave 1, adolescent problem behaviors were measured using a subset of a 17-item series adapted from the National Longitudinal Study of Youth (NLSY; Borus, Carpenter, Crowley, & Daymont, 1982) and the Youth Deviance Scale (Gold, 1970; used by Steinberg, Mounts, Lamborn, & Dornbusch, 1991). Five questions assessed the adolescent's drug and alcohol use within the past year on a 1 (*never*) to 4 (*often*) scale. Items were summed with higher scores reflecting more usage ($\alpha = .57$).

Mental health problems. Adolescents completed the Brief Symptom Inventory (BSI-18; Derogatis, 2000) at the wave 1 interview. This scale assesses three of the original nine areas of psychiatric symptoms including depression ($\alpha = .81$), anxiety ($\alpha = .82$), and somatization ($\alpha = .76$) at each wave of data collection (18 items; $\alpha = .91$). Composite scores were created according to the scale's authors. To address skewness in the raw subscale scores, variables

[1] Models were first examined with family income, family structure, time in neighborhood, and number of moves, as well as adolescents' race and sex and mother's education. For parsimony, final models are presented and discussed with only adolescents' race and sex and mother's education because family income (M = \$1088.01 per month, SD = \$809.30), family structure (81.3% single parent), time in neighborhood (M = 113.11 months, SD = 129.37), and number of moves (M = 1.23, SD = 1.03) were not significant and results did not change with their exclusion.

were transformed by adding 1 to the raw score and taking the natural log. The current analyses did not utilize the somatization scores.

Externalizing behaviors. Mothers completed the Child Behavior Check List (CBCL; Achenbach, 1991) in wave 1 of data collection. This widely used measure assesses the adolescent's emotional and behavioral problems. The CBCL can be broken into two subscales: internalizing behaviors (depressive symptoms and anxiety) and externalizing behaviors (aggression and delinquency; $\alpha = .90$); however, only the externalizing behaviors scores were utilized in the current analyses. Standard scores (t-scores) were calculated for the externalizing behaviors subscale based on normative information from a nationally representative sample gathered by the scales' author.

Early Family Microsystem Risk Factors

Parental domestic violence. Using a modified version of the CTS (Straus, 1979) mothers reported their experiences with psychological and physical domestic violence victimization in the past 12 months, using ACASI in wave 1. A mean composite score was created from 12 questions reflecting if the mother had been threatened, hit, kicked, or beaten by her partner in the past 12 months. The items were rated on a 4-point Likert Scale 1 (*never*) to 4 (*often*; $\alpha = .89$).

Mother-adolescent hostility. Adolescents completed the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) to report on their relationship with their mothers in wave 1 of the survey. Twelve items were used to assess mother-child trust and communication and hostility ($\alpha = .65$) with a 1 (*never true*) to 5 (*always true*) scale. Only the hostility component of the mother-child relationship was utilized in the current study. Hostility items included feelings of shame and the need to avoid talking about concerns with the mother. The six hostility items were averaged to develop a composite score of the hostility items, with high scores reflecting more hostility.

Father-adolescent hostility. Adolescents responded to the same set of questions about their perceived relationship with fathers as they did with mothers. Again, the measured aspects included father-child trust and communication and hostility ($\alpha = .65$). Only the six hostility items were included in the averaged composite score.

Low parental monitoring. Adolescents were asked about their perception of parental monitoring at wave 1 of data collection. Items included a series of questions regarding mothers' awareness of friendships, mothers' knowledge of location of the adolescent when away from the mother, and mothers' knowledge of how free time and money are spent. A composite score of the five items was created by first reverse coding the items, then dividing the item responses by the total number of response categories for the item (Steinberg et al., 1991). Next, the recoded items were averaged across all monitoring items to create the overall score, with higher scores reflecting lower parental monitoring ($\alpha = .70$).

Early School Microsystem Risk Factors

Academic difficulties. Mothers reported about academic difficulties at wave 1 of data collection. It was measured using reports of grades received in school according to the adolescent's most recent report card, using a scale of 1 (mostly *A's*) to 5 (mostly *F's*).

Low school involvement. Adolescents were asked about their schooling in wave 1 of data collection (Elliot, Wilson, Huizinga, Sampson, Elliot, & Rankin, 1996). Seven items in the schooling section assessed the extent adolescents were involved in school activities in the prior 12 months using a 1 (*yes*) or 0 (*no*) responses. Activities ranged from earning awards for performances to participating in after-school activities. Items were reverse coded and then summed, with higher scores reflecting less school involvement ($\alpha = .61$).

Involvement with antisocial peers. Adolescents were asked about peer relations in the second wave of data collection (Elliot et al., 1996). Of the 27 items in the peer relations section, 11 asked about the adolescent having friends who take part in delinquent activities like stealing, doing drugs, drinking alcohol, and carrying a weapon. The responses to these items were on a 1 (*none of them*) to 4 (*all of them*) Likert scale. The items were summed, so higher scores reflect more antisocial friends ($\alpha = .88$).

Early Neighborhood Microsystem Risk Factors

2000 U. S. Decennial Census variables. To better understand the impact that the early adolescent, family, and school microsystem risks have on adolescents' later dating violence perpetration, neighborhood risk factors were also examined. Three of the four factors came from the 2000 U. S. Decennial Census. The U. S. Census data is divided into small

homogenous geographic regions called census tracts, which are designed based on population characteristics, economic status, and living conditions with the intent that the boundaries are relatively permanent (U. S. Census Bureau, 1997). These tracts can vary in size from 1,000 to 8,000 people, with an average of roughly 4,000 individuals each. Geocodes, which were included in the *Three-City Study*, were utilized to match the adolescent's residence in the present study to Census tracts.

Hierarchical linear modeling (HLM) was first utilized in the present study to account for the nested nature of the data. In this analysis, Census tracts (N = 216) were combined based on geography in over 93% of cases to ensure that at least 80% of the neighborhood clusters had more than 10 adolescents (Maas & Hox, 2005). Weighted averages of the Census variables (described below) were then calculated and utilized in an HLM analysis. HLM models revealed no significant slope or intercept variation across neighborhood clusters. This lack of neighborhood variation thus warranted the use of lagged OLS regressions to test the research hypotheses. Finally, weighted averages were not used, but rather Census tract-level data was utilized in the present study. Of the 216 tracts in the study, the average number of adolescents per tract was 3.54.

The following variables were used from the 2000 U. S. Decennial Census to indicate *concentrated poverty*: percent of families below poverty and percent owner-occupied housing (Gorman-Smith, Tolan, & Henry, 2000). Percent owner-occupied housing was subtracted from one so that the number would represent the percent of residents who did not own their home. Next, a score representing concentrated poverty was generated by averaging the two indicators corresponding to their census tract information. The percent of racial/ethnic minorities was used to represent *racial segregation* (Wickrama & Bryant, 2003). Finally, the percent of neighborhood residents who had moved in the last five years was used to address *residential instability.*

Neighborhood crime. In wave 1, mothers responded to 11 items about the degree to which aspects of their neighborhoods were a problem on a 1 (*not a problem*) to 3 (*a big problem*) scale. Four of the items that addressed problems with crimes such as: burglaries,

thefts, assaults, muggings, gangs, and drugs were summed to create a composite of experiences with neighborhood crime ($\alpha = .84$).

Middle Adolescence Neighborhood Microsystem Protective Factor

Collective efficacy. Mothers answered nine items about the neighborhood they live in using a scale similar to Robert Sampson's Collective Efficacy Scale (see Sampson et al., 1997) in wave 2. Four items were recoded from a four category response *(strong disagree to strong agree)* to match this five category response ($\alpha = .87$). Items were summed so higher scores reflect more perceived collective efficacy.

Results

It was hypothesized that the early adolescent, family, school, and neighborhood risk factors would be positively related to later dating violence perpetration. Furthermore, collective efficacy was predicted to buffer the relationship between early risk factors and later dating violence perpetration. The results for hypothesis one and two are described in detail below for the total sample and for males and females, black and Hispanic adolescents, and sex by race, separately. An overview of perpetration rates and types is presented first, followed by a discussion of the lagged OLS hierarchical regression results associated with each hypothesis.

Analyses were performed in SPSS 16.0 and STATA 10.0. Prior to analysis, the multiple imputation procedure in STATA 10.0 was utilized to address missingness in continuous independent variables (Royston, 2004; Royston, 2005). Missing data on these predictors ranged from 2.1 to 10 percent, with a mode of 2.5 percent. The regression coefficients presented here represent the average coefficients across 5 multiply imputed datasets; parameter estimates were combined by applying Rubin's rules (Royston, 2004). Missing values in categorical variables, such as race, sex, and mother's education, were addressed by imputing responses from the same participant in other waves of data prior to analysis (mode = 2.1%). The sample was created based on available data for dating violence perpetration, the dependent variable; therefore, this variable was not imputed. Finally, unweighted models are presented. Population weights were not employed because the use of multiple imputation

already corrects for nonresponse bias and the use of population weights may overly bias or inflate the coefficients (Horowitz & Manski, 1998).

Perpetration Rates and Types

To assess whether differences in types of dating violence perpetration across adolescents' sex and race exist, a t-test and analysis of variance (ANOVA) was conducted in SPSS 16.0, respectively. SPSS, instead of STATA, was used because there was no data that needed to be imputed using multiple imputation for these analyses. Thirty-four percent of the adolescents reported at least one instance of perpetration of dating violence. Females perpetrated more dating violence than males ($t(732.11) = -8.32$, $p < .001$); however, the majority of violent acts were mild (e.g., pushing, grabbing, shoving), rather than severe (e.g., beating or burning). In addition, significant differences in types of perpetration were found between the sexes. Specifically, females perpetrated more violence of all types compared to males, except for forced sexual activity and beating, in which no significant differences were found (Table 4). Perpetration rates and type also varied by adolescents' race. Specifically, black adolescents ($M = 1.08$, $SD = 1.64$) perpetrated more overall dating violence than Hispanic adolescents ($M = 0.73$, $SD = 1.37$; $F(2, 762) = 5.57$, $p < .01$). However, when the types of violence were examined separately, Hispanic adolescents ($M = 1.83$, $SD = .40$) were more likely than black adolescents ($M = 1.72$, $SD = .49$) to threaten to hit ($p < .01$) and push, grab, or shove their partners ($M_H = 1.80$, $SD_H = .40$; $M_B = 1.70$, $SD_B = .45$, $p < .05$).

Multivariate Analyses

Associations between perpetration of dating violence and early risk factors were addressed through a series of lagged OLS hierarchical regression techniques. Composites from wave one demographic characteristics and adolescent risk factors were entered into step 1, family risk factors were added in step 2, school risk factors were added in step 3, and neighborhood risk factors were added in the final step, creating a full main effects equation. For parsimony, only the full main effects models run for the total sample and by adolescents' sex, race, (Table 5) and race by sex (Table 6) are presented. Finally, to examine the moderating effect of mother's perception of collective efficacy on the impact of each of the early risk factors on adolescents' perpetration of dating violence (hypothesis two), a fifth step

was tested. Each variable in the model was centered, and interaction terms were formed between collective efficacy and each risk factor (Aiken & West, 1991; Holmbeck, 2002). The interaction terms were independently assessed in the full main effects model with perceived collective efficacy (Aiken & West). Finally, all significant interactions were plotted following procedures outlined in Aiken and West. All models were examined for the total sample as well as by adolescents' sex, race, and race by sex, but for parsimony, only the models with significant collective efficacy effects are presented in Table 7.

Dating Violence Perpetration Risk Factors

Hypothesis one proposed that the early adolescent, family, school, and neighborhood risk factors would increase adolescents' perpetration of dating violence. This hypothesis was partially supported. Female adolescents and black adolescents compared to Hispanic adolescents were at increased risk for perpetrating dating violence. In addition, one standard deviation increase in drug and alcohol use, low parental monitoring, academic difficulties, and involvement with antisocial peers in early adolescence increased adolescents' perpetration of dating violence in late adolescence by approximately .09 standard deviations on average (column 2 of Table 5).

In addition to the risks for the total sample, there were differences in longitudinal predictors between sexes and races. In particular, males' and females' perpetration was predicted by being black compared to Hispanic and being involved with antisocial peers (columns 3 and 4 of Table 5). Furthermore, for females, one standard deviation increase in low parental monitoring resulted in a .14 standard deviation increase in dating violence perpetration. On the other hand, for males, early drug and alcohol use and depressive symptoms increased dating violence perpetration in late adolescence. Next, black adolescents were more likely to perpetrate dating violence if they were female, exhibited externalizing behaviors, and associated with antisocial peers in early adolescence (column 5 of Table 5). Hispanic adolescents were at risk for perpetrating dating violence in late adolescence if they were female or used drugs and alcohol in early adolescence (column 6 of Table 5).

Finally, main effects models were examined for black females and males as well as Hispanic females and males separately (Table 6). For black males and females (columns 2

and 3), associating with antisocial peers was an early risk factor for later dating violence perpetration; however, this was only a marginal risk for Hispanic males (column 4) and was not a significant risk factor for Hispanic females (column 5). In addition, for black females, exhibiting externalizing behaviors, and for black males and Hispanic females, using drugs and alcohol also increased their likelihood to perpetrate dating violence in later adolescence. Lastly, one standard deviation increase in mothers' experiences with domestic violence resulted in a .15 standard deviation increase in Hispanic females' perpetration of dating violence.

Overall, at least one risk factor from each of the microsystems, except the neighborhood, predicted later perpetration of dating violence among adolescents. Differences found between sexes and races are explored in the discussion, along with potential reasons why the neighborhood environment did not impact the adolescents in this sample.

Perceived Neighborhood Collective Efficacy as Protection

Hypothesis two proposed that mothers' perceptions of neighborhood collective efficacy would act as a buffer between early risk factors and adolescents' later perpetration of dating violence. Results did not support this hypothesis for the total sample; however, when models were analyzed for sex, race, and race by sex separately, perceived collective efficacy did have a significant impact (Table 7). Unexpectedly, for males and black males (columns 2 and 3), perceived collective efficacy increased their dating violence perpetration (other significant main effects remained the same as described above). Also unexpected, for males only, perceived collective efficacy strengthened the relationship between domestic violence and dating violence perpetration (Figure 2). In other words, represented by the dashed line, male adolescents whose mothers reported high levels of neighborhood collective efficacy and high levels of domestic violence were more likely to perpetrate dating violence. On the other hand, when low collective efficacy (solid line) and high domestic violence was reported, male adolescents were less likely to perpetrate dating violence. In addition, the same significant conditional effects persisted even with the inclusion of collective efficacy and the domestic violence by collective efficacy interaction; however, residential instability also became a significant risk factor for males.

Finally, for Hispanic males (column 4), perceived collective efficacy buffered the relationship between early academic difficulties and later dating violence perpetration (Figure 3), but no other conditional effects were found. In other words, Hispanic male adolescents who had academic difficulties were less likely to perpetrate dating violence if their mothers reported high levels of neighborhood collective efficacy (dashed line) versus those whose mothers reported low levels of collective efficacy (solid line). Potential reasons for the unexpected impact of perceived collective efficacy on dating violence perpetration for males and black males are explored in the discussion.

Discussion

This study contributes to the current body of literature on adolescents' perpetration of dating violence by simultaneously including several contextual risk factors in the analyses and utilizing longitudinal data of an understudied population – a sample of low-income, predominately minority adolescent males and females. Approximately 34% of the adolescents had perpetrated dating violence, with most cases being "mild" violence, such as slapping or pinching. Differences in precursors to dating violence perpetration, and in the moderating effect of perceived collective efficacy, emerged for black males and females as well as Hispanic males and females. The findings provide support for Bronfenbrenner's bioecological model and the importance of considering several microsystems and mesosystems to better understand how risk factors in multiple contexts impact adolescents' perpetration of dating violence. A comparison of these results with prior research, limitations of the current study, future directions for research on dating violence in adolescence, and prevention implications are discussed.

The Importance of Neighborhood Collective Efficacy

Neighborhood collective efficacy has been examined as a protective factor for the neighborhood risk factors (Sampson et al., 1997) and interpersonal violence (Almgren, 2005; Browning, 2002), but has not been examined as a buffer between several contextual risk factors and adolescents' perpetration of dating violence. Indeed, in the present study, perceived collective efficacy was a longitudinal protective factor for Hispanic males. Specifically, Hispanic males who had academic difficulties in early adolescence were less

likely to perpetrate dating violence in late adolescence when their mothers perceived high levels of neighborhood collective efficacy in middle adolescence. Bronfenbrenner's concept of the mesosystem is illustrated in this finding because mothers' perceptions of neighborhood cohesion and social control interacted with their children's grades in school to impact their adolescent children's development. Furthermore, this interaction of a risk and protective factor resulted in resiliency, or the reduction of a risky behavior (dating violence perpetration), despite the existence of a risk factor (academic difficulties).

Although perceived neighborhood collective efficacy decreased Hispanic males' perpetration of dating violence, it unexpectedly increased males' and black males' perpetration of dating violence in late adolescence. Specifically, when mothers perceived high levels of cohesion and social control in their neighborhoods, males and black males were more likely to perpetrate dating violence. Perhaps collective efficacy may work against youth in these neighborhoods because of the potentially higher level of violence in neighborhoods characterized by residential instability, economic disadvantage, and racial segregation (Shaw & McKay, 1942). In other words, when males and black males feel close and supported by male role models in their neighborhoods who use and accept the use of violence they, in turn, also behave aggressively (Aisenberg & Ell, 2005; Bandura, 1977). Future work should include information about neighborhood violence rates to explore this possibility. Alternatively, because collective efficacy is an individual-level subjective measure, these mothers may have a false sense of security in their neighborhoods, exhibited by their reports of collective efficacy among neighbors, but in reality neighbors are not looking out for adolescents' best interests. As a result, although mothers report high levels of collective efficacy, it may not be as high in reality and may therefore not be protecting black male adolescents, but may actually be putting them at risk for dating violence perpetration.

Furthermore, when males lived in homes where their mothers experienced domestic violence, high levels of perceived collective efficacy did not buffer the relationship between mother's domestic violence experience and adolescents' later perpetration of dating violence, but rather it strengthened the relationship. Given that parental domestic violence is a risk factor for youth in general (Markowitz, 2001; Rosenbaum & Leisring, 2003; Whitfield et al.,

2003; Williams et al., 2001; Wolf & Foshee, 2003), and mother's perceptions of collective efficacy is a risk factor for males in this study, the two combined would also increase adolescent males' dating violence perpetration. Again, this unexpected finding for collective efficacy may be due to a lack of positive male role models in the neighborhood. It may also be that mothers' perceptions of collective efficacy among neighbors are a false sense of security that her children are behaving well, but in fact they are perpetrating dating violence.

Early Risk Factors for Dating Violence

A wide array of early risk factors was assessed, including: adolescents' use of drugs and alcohol (LaVoie et al., 2000; O'Donnell et al., 2006), mothers' experiences with domestic violence (Markowitz, 2001; Rosenbaum & Leisring, 2003; Whitfield et al., 2003; Williams et al., 2001; Wolf & Foshee, 2003), adolescents' academic difficulties (Bergman, 1992; Cleveland et al., 2003), and residential instability (Gorman-Smith & Tolan, 1998; Margolin & Gordis, 2000). For the total sample of low-income, predominately minority adolescents, drug and alcohol use, low parental monitoring, academic difficulties, and involvement with antisocial peers were significant early risk factors for dating violence perpetration in late adolescence. These findings support and build upon existing research on dating violence perpetration. Specifically, drug and alcohol use (LaVoie et al., 2000; O'Donnell et al., 2006), academic difficulties (Bergman, 1992; Cleveland et al., 2003), and involvement with antisocial peers (Capaldi, Dishion, Stoolmiller, & Yoerger, 2001; Schnurr & Lohman, 2008) have been identified as precursors to adolescents' perpetration of dating violence, but the present study adds to existing literature by examining low parental monitoring as a risk factor for dating violence perpetration. Past research more often examined parental monitoring as a protective factor (Howard, Qiu, & Boekeloo, 2003; Stattin & Kerr, 2000; Tolan, Gorman-Smith, & Henry, 2002) or when it was examined as a risk factor, related it to other antisocial behaviors, including assault (Ary, Duncan, Duncan, & Hops, 1999; Capaldi, Pears, Patterson, & Owen, 2003).

Risk factors varied by adolescents' sex, race, and race by sex, but the findings were supported by past literature overall. First, males, females, and black males and females were more likely to perpetrate dating violence in late adolescence if they had prior involvement

with antisocial peers. Involvement with antisocial peers was not a significant risk factor for Hispanic males and females, which may be due to the Hispanic tradition of *familismo* (Bean, Perry, & Bedell, 2001). Following this cultural tradition, family is of utmost importance and thus has great influence on behaviors. Given this influence, peers have less of an impact on Hispanic adolescents' behaviors compared to family. Indeed, having a mother who experienced domestic violence increased dating violence perpetration in late adolescence for Hispanic females, but not for any other group.

Second, for males, black males, and Hispanic females, early drug and alcohol use increased their dating violence perpetration in late adolescence. Using these substances lowers inhibitions, and therefore may play a part in adolescents' decisions to be violent toward their partners. Indeed, drugs and alcohol have been found to impair an adolescent's cognitive decision-making skills (Chassin, Hussong, Barrera, Molina, Trim, & Ritter, 2004). Why the negative effects of drug and alcohol use did not affect black females or Hispanic males may be because other risk factors are more important for these groups. In particular, other externalizing behaviors, such as, bullying, destroying others' belongings, and impulsiveness (Achenbach, 1991) are important risk factors for black females; however, none of the included risk factors were significant for Hispanic males. Following Bronfenbrenner's bioecological theory, adolescents' surroundings have a reciprocal impact on their development; therefore, this lack of a significant finding may be due to the omission of risk factors from microsystems that were not assessed in the present study. For example, sibling relationships were not measured in the *Three-City Study*, but may be more important risk factors for Hispanic males. Specifically, recent research which assessed interpersonal aggression among males and females found that adolescents who had an aggressive sibling were more likely to be aggressive toward others (Williams, Conger, & Blozis, 2007).

Third, for females only, low parental monitoring was a risk factor for dating violence perpetration; however, for males only, depressive symptoms increased their dating violence perpetration. Experiencing low levels of monitoring from parents provides more of an opportunity to be involved in risky behaviors, such as dating violence perpetration. Monitoring may be more important for females than males because family factors have been

shown to be more important for females (Baumrind, 1991; Gutman & Eccles, 2007). Next, depressive symptoms were a risk factor for violence perpetration in general, but why these symptoms affect only males in the present study is not understood. It may be that depressive symptoms is a selection factor and that males who experience such symptoms deal with them by acting aggressively toward their romantic partners; whereas females who experience such symptoms turn to friends or deal with them privately. Indeed, adolescents who were included in this sample versus those who dropped out of the study after wave 1 had significantly higher depressive symptoms. Although results varied for different groups of adolescents, each of the significant risk factors is supported by past literature. Moreover, at least one risk factor from three of the four microsystems significantly contributed to adolescents' perpetration of dating violence, supporting Bronfenbrenner's bioecological theory.

Unexpectedly, none of the neighborhood risk factors significantly contributed to adolescents' perpetration of dating violence in late adolescence. This may be due to a lack of variation in the sample, given that neighborhoods in the *Three-City* Study were chosen if they were 200% of the poverty line or below (Winston et al., 1999). This may also explain why family income did not influence the models, and was therefore left out of the final analysis for parsimony. These neighborhoods, in particular, are often characterized by residential instability, racial segregation, and neighborhood crime, which are all interrelated according to social disorganization theory (Shaw & McKay, 1942). Furthermore, because the neighborhoods in the *Three-City Study* are homogenous with respect to economic disadvantage, it may be that adolescent, family, and school factors are more important risk factors for dating violence perpetration. For example, when teens live in a neighborhood characterized by economic disadvantage, neighbors who come and go, racial segregation, and high levels of crime, they view their surroundings as unsafe (Margolin & Gordis, 2000), and consequently are less likely to 'hang out' in the neighborhood. Thus, teens spend more time inside with family or at school with peers. This differential time use may contribute to the greater influence of the family and school environment on adolescents' perpetration of dating violence in the present study.

Application of Results

Given the differing results by adolescents' sex and race, utilizing a multi-context bioecological systems theory approach should be applied in future studies to understand adolescents' development and behavior and to develop prevention programs (Jordan, 2002). Overall, at least one early risk factor from three of the four microsystems significantly contributed to adolescents' perpetration of dating violence in late adolescence. Specifically, drug and alcohol use, depressive symptoms, and externalizing behaviors were significant adolescent characteristics that increased adolescents' risk of dating violence perpetration. Low parental monitoring and domestic violence were significant family microsystem risk factors for females and Hispanic females, respectively. Next, involvement with antisocial peers, from the school microsystem, was the most consistent risk factor and increased dating violence perpetration for males, females, and black males and females. Finally, perceived neighborhood collective efficacy buffered the relationship between early academic difficulties and later dating violence perpetration for Hispanic males. These results support the idea that prevention and intervention programs must include more than characteristics of adolescents and their romantic partners in curricula.

Dating violence education programs must also incorporate and consider risk factors in adolescents' family and school surroundings as well as foster positive cohesion and social control in neighborhoods to prevent dating violence among teens. In particular, programs should focus on decreasing drug and alcohol use, depressive symptoms, and externalizing behaviors among adolescents, along with teaching them healthy relationship behaviors. Drawing from social learning theory (Bandura, 1977), reducing these negative behaviors and increasing healthy behaviors in youth has an indirect effect on dating violence prevention by reducing the amount of negative behaviors that other teens model from their peers. This may be an effective strategy, in light of results showing that involvement with antisocial peers was a risk factor for perpetration of dating violence. In addition, parents should be involved in programs to emphasize the importance of monitoring their adolescent children as well as modeling healthy relationship behaviors. The first step in prevention is educating males and females on the types of dating violence perpetration that exist. Next, including parents in

prevention programs will allow important family precursors to be discussed, such as monitoring and domestic violence. Finally, educators should focus on risk factors in several contexts, as well as the important buffering effect of neighborhood collective efficacy, in order to meet the specific needs of black males and females as well as Hispanic males and females. Indeed, the family, school, and positive neighborhood environments matter for these adolescents.

Limitations and Future Directions

Though there were several strengths, the present study has some limitations as well. First, the sample is predominantly low socioeconomic status; therefore, the proposed relationships could not be compared across different economic backgrounds. Second, comparisons between white adolescents and underrepresented racial/ethnic groups were not possible due to a small sample of white adolescents in the present study. Utilizing a sample with large numbers of black, Hispanic, and white adolescents would be beneficial in the future in order to analyze how perpetration of dating violence may vary by underrepresented populations compared to whites. Third, only heterosexual relationships were included in the current analyses. Although more research needs to be done to increase the understanding of dating violence perpetration for heterosexual dating couples, research on homosexual dating couples is in great need of attention. Fourth, the study is limited in that only one partner in the relationship reported on his/her violent experiences. In the future, researchers should aim to retain information from both members of the dating couple in order to get a better representation of dating violence perpetration. Finally, collective efficacy was based on the mother's perceptions of the level of collective efficacy in her neighborhood. Future research should aim to gather neighborhood information from all residents in the neighborhood to move beyond perceptions.

Acknowledgements

I gratefully acknowledge the support of the following organizations. Government agencies: National Institute of Child Health and Human Development (RO1 HD36093 "Welfare Reform and the Well-Being of Children"), Office of the Assistant Secretary of Planning and Evaluation, Administration on Developmental Disabilities, Administration for

Children and Families, Social Security Administration, and National Institute of Mental Health. Foundations: The Boston Foundation, The Annie E. Casey Foundation, The Edna McConnell Clark Foundation, The Lloyd A. Fry Foundation, The Hogg Foundation for Mental Health, The Robert Wood Johnson Foundation, The Joyce Foundation, The Henry J. Kaiser Family Foundation, The W.K. Kellogg Foundation, The Kronkosky Charitable Foundation, The John D. and Catherine T. MacArthur Foundation, The Charles Stewart Mott Foundation, The David and Lucile Packard Foundation, The Searle Fund for Policy Research, and The Woods Fund of Chicago. A special thank you is extended to our research firm, Research Triangle Institute (RTI), as well as to the children and caregivers who graciously participated in the *Three-City Study* and gave us access to their lives.

References

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and 1991 profile*. Burlington, VT: University of Vermont Department of Psychiatry.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

Aisenberg, E., & Ell, K. (2005). Contextualizing community violence and its effects: An ecological model of parent-child interdependent coping. *Journal of Interpersonal Violence, 20,* 855-871.

Allen, J. P., Hauser, S. T., Eickholt, C., Bell, K. L., & O'Connor, T. G. (1994). Autonomy and relatedness in family interactions as predictors of expressions of negative adolescent affect. *Journal of Research on Adolescence, 4*(4), 535-552.

Almgren, G. (2005). The ecological context of interpersonal violence: From culture to collective efficacy. *Journal of Interpersonal Violence, 20,* 218-224.

Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16*, 427-454.

Ary, D. V., Duncan, T. E., Duncan, S. C., & Hops, H. (1999). Adolescent problem behavior: The influence of parents and peers. *Behaviour Research and Therapy, 37*, 217-230.

Bandura, A. (1977). *Social Learning Theory.* New York: General Learning Press.

Baumrind, D. (1991). Effective parenting during the early adolescent transition. In P. A. Cowan & E. M. Hetherington (Eds.), *Family Transitions* (pp.11-163). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Bean, R. A., Perry, B. J., & Bedell, T. M. (2001). Developing culturally competent marriage and family therapists: Guidelines for working with Hispanic families. *Journal of Marital and Family Therapy, 27,* 43-54.

Bergman, L. (1992). Dating violence among high school students. *Social Work, 37*(1), 21-27.

Borus, M. E., Carpenter, S. W., Crowley, J. E., Daymont, T., N., et al. (1982). *Pathways to the future, Volume II: A final report on the National Survey of Youth labor market experience in 1980.* Columbus, Ohio: Center for Human Resource Research, The Ohio State University.

Bronfenbrenner, U. (1989). Ecological systems theory. *Annuals of Child Development, 6,* 187-249.

Bronfenbrenner, U. (1993). The ecology of cognitive development: Research models and fugitive findings. In R. H Wozniak & K. W. Fischer (Eds.), *Development in context: Acting and thinking in specific environments.* Hillsdale, NJ: Erlbaum.

Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S. L. Friedman, & T. D. Wachs (Eds.), *Measuring environment across the life span: Emerging methods and concepts* (pp. 3-28). Washington DC: APA.

Browning, C. R. (2002). The span of collective efficacy: Extending social disorganization theory to partner violence. *Journal of Marriage and the Family*, *64*(4), 833-850.

Burgess, A. W., & Roberts, A. R. (2002). Violence within families through the life span. In L. A. Rapp-Paglicci, A. R. Roberts, & J. S. Wodarski (Eds.), *Handbook of violence* (pp. 3-33). New York: John Wiley & Sons.

Burton, L. M., & Jarrett, R. L. (2000). In the mix, yet on the margins: The place of families in urban neighborhood and child development research. *Journal of Marriage and the Family, 62,* 1114-1135.

Capaldi, D. M., Dishion, T. J., Stoolmiller, M., & Yoerger, K. (2001). Aggression toward female partners by at-risk young men: The contribution of male adolescent friendships. *Developmental Psychology, 37*(1), 61-73.

Capaldi, D. M., Pears, K. C., Patterson, G. R., & Owen, L. D. (2003). Continuity of parenting practices across generations in an at-risk sample: A prospective comparison of direct and mediated association. *Journal of Abnormal Child Psychology, 31*(2), 127-142.

Carlson, B. E. (2000). Children exposed to intimate partner violence: Research findings and implications for intervention. *Trauma, Violence, & Abuse, 1*, 321-342.

Chase, K. A., Treboux, D., & O'Leary, K. D. (2002). Characteristics of high-risk adolescents' dating violence. *Journal of Interpersonal Violence, 17*(1), 33-49.

Chassin, L., Hussong, A., Barrera, M., Molina, B., Trim, R., & Ritter, J. (2004). Adolescent substance abuse. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 665-696). New Jersey: Wiley & Sons.

Cleveland, H. H., Herrera, V. M., & Stuewig, J. (2003). Abusive males and abused females in adolescent relationships: Risk factors similarity and dissimilarity and the role of relationship seriousness. *Journal of Family Violence, 18*(6), 325-339.

Coley, R. (2003). Daughter-father relationships and adolescent psychosocial functioning in low-income African-American families. *Journal of Marriage and Family, 65,* 867-875.

Deng, S., Lopez, V., Roosa, M., Ryu, E., Burrell, L., Tein, J., & Crowder, S. (2006). Family processes mediating the relationship of neighborhood disadvantage to early adolescent internalizing problems. *Journal of Early Adolescence, 26,* 206-231.

Derogatis, L. R. (2000). *Brief Symptom Inventory 18, administration, scoring, and procedures manual.* Minneapolis, MN: National Computer Systems.

Doumas, D., Margolin, G., & John, R. S. (1994). The intergenerational transmission of aggression across three generations. *Journal of Family Violence, 9*(2), 157-175.

Ellickson, P. L., & McGuigan, K. A. (2000). Early predictors of adolescent violence. *American Journal of Public Health, 90*(4), 566-572.

Elliot, D. S., Wilson, W. J., Huizinga, D., Sampson, R. J., Elliott, A., & Rankin, B. (1996). The effects of neighborhood disadvantage on adolescent development. *Journal of Research in Crime and Delinquency, 33,* 389-426.

Ely, G., Dulmus, C. N., & Wodarski, J. S. (2002). Adolescent dating violence. In L. A. Rapp-Paglicci, A. R. Roberts, & J. S. Wodarski (Eds.), *Handbook of violence* (pp. 33-53). New York: John Wiley & Sons.

Farrington, D. P. (2005). Childhood origins of antisocial behavior. *Clinical Psychology and Psychotherapy, 12,* 177-190.

Feiring, C., Deblinger, E., Hoch-Espada, A., & Haworth, T. (2002). Romantic relationship aggression and attitudes in high school students: The role of gender, grade, and attachment and emotional styles. *Journal of Youth and Adolescence, 31,* 373-385.

Foo, L., & Margolin, G. (1995). A multivariate investigation of dating aggression. *Journal of Family Violence, 10*(4), 351-377.

Foshee, V.A. (1996). Gender differences in adolescent dating abuse prevalence, types, and injuries. *Health Education Research, 11,* 275-286.

Foshee, V. A., Ennett, S. T., Bauman, K. E., Benefield, T., & Suchindran, C. (2005). The association between family violence and adolescent dating violence onset: Does it vary by race, socioeconomic status, and family structure? *Journal of Early Adolescence, 25*(3), 317-344.

Foshee, V. A., Linder, F., MacDougall, J. E., & Bangdiwala, S. (2001). Gender differences in the longitudinal predictors of adolescent dating violence. *Preventive Medicine, 32,* 128-141.

Franzini, L., Caughy, M., Spears, W., Eugenia, M., & Esquer, F. (2005). Neighborhood economic conditions, social processes, and self-rated health in low-income neighborhoods in Texas: A multilevel latent variable model. *Social Science & Medicine, 61,* 1135-1150.

Gifford-Smith, M., Dodge, K. A., Dishion, T. J., McCord, J. (2005). Peer influence in children and adolescents: Crossing the bridge from developmental to intervention science. *Journal of Abnormal Child Psychology, 33*(3), 255-265.

Gold, M. (1970). *Delinquent behavior in an American city*. Belmont, CA: Brooks/Cole.

Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development & Psychopathology, 10,* 101-116.

Gorman-Smith, D., Tolan, P. H., Henry, D. B. (2000). A developmental-ecological model of the relation of family functioning to patterns of delinquency. *Journal of Quantitative Criminology, 16,* 169-198.

Gutman, L. M., & Eccles, J. S. (2007). Stage-environment fit during adolescence: Trajectories of family relations and adolescent outcomes. *Developmental Psychology, 43,* 522-537.

Herrenkohl, T. I., Maguin, E., Hill, K. G., Hawkins, J. D., Abbott, R. D., & Catalano, R. F. (2000). Developmental risk factors for youth violence. *Journal of Adolescent Health, 26,* 176-186.

Herrenkohl, T. I., Sousa, C., Tajima, E. A., Herrenkohl, R. C., & Moylan, C. (2008). Intersection of child abuse and children's exposure to domestic violence. *Trauma, Violence, & Abuse, 9,* 84-99.

Hilton, N. Z., & Harris, G. T. (2005). Predicting wife assault: A critical review and implications for policy and practice. *Trauma, Violence, and Abuse, 6*(1), 3-23.

Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and meditational effects in studies of pediatric populations. *Journal of Pediatric Psychology, Special Issue on Methodology and Design, 27,* 87-96.

Horowitz, J. L., & Manski, C. F. (1998). Censoring of outcomes and regressors due to survey nonresponse: Identification and estimation using weights and imputations. *Journal of Econometrics, 84,* 37-58.

Howard, D., Qiu, Y., & Boekeloo, B. (2003). Personal and social contextual correlates of adolescent dating violence. *Journal of Adolescent Health, 33,* 9-17.

Jordan, K. (2002). School violence among culturally diverse populations. In L. A. Rapp-Paglicci, A. R. Roberts, & J. S. Wodarski (Eds.), Handbook of violence (pp. 326–346). New York: John Wiley & Sons.

Kaura, S. A., & Allen, C. M. (2004). Dissatisfaction with relationship power and dating violence perpetration by men and women. *Journal of Interpersonal Violence, 19*(5), 576-588.

Keyes, C. L. M. (2004). Risk and resilience in human development: An introduction. *Research in Human Development, 1*(4), 223-227.

LaVoie, F., Hebert, M., Tremblay, R., Vitaro, F., Vezina, L., & McDuff, P. (2002). History of family dysfunction and perpetration of dating violence by adolescent boys: A longitudinal study. *Journal of Adolescent Health, 30,* 375-383.

LaVoie, G., Robitaille, L., & Hebert, M. (2000). Teen dating relationships and aggression: An exploratory study. *Violence Against Women, 6*(1), 6-36.

Lichter, E. L., & McCloskey, L. A. (2004). The effects of childhood exposure to marital violence on adolescent gender-role beliefs and dating violence. *Psychology of Women Quarterly, 28,* 344-357.

Malik, S., Sorenson, S. B., & Aneshensel, C. S. (1997). Community and dating violence among adolescents: Perpetration and victimization. *Journal of Adolescent Health, 21*(5), 291-302.

Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51,* 445-479.

Markowitz, F. E. (2001). Attitudes and family violence: Linking intergenerational and cultural theories. *Journal of Family Violence, 16*(2), 205-218.

Maas, C. J. M., & Hox, J. J. (2005). Sufficient sample sizes for multilevel modeling. *Methodology, 1,* 86-92.

Mazefsky, C. A., & Farrell, A. D. (2005). The role of witnessing violence, peer provocation, family support, and parenting practices in the aggressive behavior of rural adolescents. *Journal of Child and Family Studies, 14*(1), 71-85.

McCloskey, L. A., & Lichter, E. L. (2003). The contribution of marital violence to adolescent aggression across different relationships. *Journal of Interpersonal Violence, 18,* 390-412.

Molidor, C., & Tolman, R. M. (1998). Gender and contextual factors in adolescent dating violence. *Violence Against Women, 4,* 180-194.

Moore, M. R., & Chase-Lansdale, L. P. (2001). Sexual intercourse and pregnancy among African-American girls in high-poverty neighborhoods: The role of family and perceived community environment. *Journal of Marriage and Family, 63,* 1146-1157.

Munoz-Rivas, M. J., Grana, J. L., O'Leary, K. D., & Gonzalez, M. P. (2007). Aggression in adolescent dating relationships: Prevalence, justification, and health consequences. *Journal of Adolescent Health, 40,* 298-304.

Nix, R. L., Pinderhughes, E. E., Dodge, K. A., Bates, J. E., Pettit, G. S., McFadyen-Ketchum, S. A. (1999). The relation between mothers' hostile attribution tendencies and children's externalizing behavior problems: The mediating role of mothers' harsh discipline practices. *Child Development, 70*(4), 896-909.

O'Donnell, L., Stueve, A., Myint-U, A., Duran, R., Agronick, G., & Wilson-Simmons, R. (2006). Middle school aggression and subsequent intimate partner physical violence. *Journal of Youth and Adolescence, 35,* 693-703.

Ohmer, M., & Beck, E. (2006). Citizen participation in neighborhood organizations in poor communities and its relationship to neighborhood and organizational collective efficacy. *Journal of Sociology and Social Welfare, 33*(1), 179-202.

O'Keefe, M. (1994). Linking marital violence, mother-child/father-child aggression, and child behavior problems. *Journal of Family Violence, 9*(1), 63-78.

O'Keefe, M. (1997). Predictors of dating violence among high school student. *Journal of Interpersonal Violence, 12*(4), 546-568.

Pettit, B., & McLanahan, S. (2003). Residential mobility and children's social capital: Evidence from an experiment. *Social Science Quarterly, 84,* 632-649.

Rankin, B. H., & Quane, J. M. (2002). Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Social Problems, 49*(1), 79-100.

Rosenbaum, A., & Leisring, P. A. (2003). Beyond power and control: Towards an understanding of partner abusive men. *Journal of Comparative Family Studies, 34*(1), 7-22.

Royston, P. (2004). Multiple imputation of missing values. *The Stata Journal, 4,* 227-241.

Royston, P. (2005). Multiple imputation of missing values: Update. *The Stata Journal, 2,* 1-14.

Sampson, R. J., Morenoff, J. D., & Earls, F. (1999). Beyond social capital: Spatial dynamics of collective efficacy for children. *American Sociological Review, 64*(5), 633-660.

Sampson, R. J., Morenoff, J. D., & Gannon-Rowley, T. (2002). Assessing "neighborhood effects": Social processes and new directions in research. *Annual Review of Sociology, 28,* 443-478.

Sampson, R. J., Raudenbush, S., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277(5328),* 918-924.

Schnurr, M. P., & Lohman, B. J. (2008). How much does school matter? An examination of adolescent dating violence perpetration. *Journal of Youth and Adolescence, 37,* 266-283.

Schwartz, M., O'Leary, S. G., & Kendziora, K. T. (1997). Dating aggression among high school students. *Violence and Victims, 12*(4), 295-305.

Shaw, C. R., & McKay, H. D. (1942). *Juvenile delinquency and urban areas.* Chicago: University of Chicago Press.

Shek, D. T. L. (2005). Paternal and maternal influences on the psychological well-being, substance abuse, and delinquency of Chinese adolescents experiencing economic disadvantage. *Journal of Clinical Psychology, 61*(3), 219-234.

Shek, D. T. L., & Ma, H. K. (2001). Parent-adolescent conflict and adolescent antisocial and prosocial behavior: A longitudinal study in a Chine context. *Adolescence, 36*(143), 545-555.

Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development, 71*(4), 1072-1085.

Steinberg, L., Mounts, N. S., Lamborn, S. D., & Dornbusch, S. M. (1991). Authoritative parenting and adolescent adjustment across varied ecological niches. *Journal of Research on Adolescence, 1,* 19-36.

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) Scales. *Journal of Marriage and the Family, 14,* 75-88.

Thomas, S. P., & Smith, H. (2004). School connectedness, anger behaviors, and relationships of violent and nonviolent American youth. *Perspectives in Psychiatric Care, 40*(4), 135-148.

Tolan, P. H., Gorman-Smith, D., & Henry, D. B. (2002). Linking family violence to delinquency across generations. *Social Policy, Research, and Practice, 5*(4), 273-284.

Turner, C. F., Forsyth, B. H., O'Reilly, J. M., Cooley, P. C., Smith, T. K., Rogers, S. M., & Miller, H. G. (1998). Automated self-interviewing and the survey measurement of sensitive behaviors. In M. P. Couper, R. P. Baker, J. Bethlehem, C. Z. F. Clark, J. Martin, W. L. Nicholls, II, & J. M. O'Reilly (Eds.), *Computer assisted survey information collection* (pp. 455-473). New York: Wiley.

U. S. Census Bureau (1997). *Glossary of decennial census terms and acronyms.* Retrieved on June 16, 2008 from http://www.census.gov/dmd/www/glossary.html#C.

U. S. Census Bureau (2000). *Decennial census, Summary File 1 & 3;* generated by Melissa P. Schnurr; (July 21, 2008) from http://www.factfinder.census.gov/servlet/DownloadDatasetServlet?_lang=en.

Vazsonyi, A. T. (2003). Parent-adolescent relations and problem behaviors: Hungary, the Netherlands, Switzerland, and the United States. *Marriage and Family Review. Special Issue: Parenting Styles in Diverse Perspectives, 35*(3-4), 161-187.

Weden, M. M., Carpiano, R. M., & Robert, S. A. (2008). Subjective and objective neighborhood characteristics and adult health. *Social Science & Medicine, 66,* 1256-1270.

Wekerle, C., & Wolfe, D. A. (1999). Dating violence in mid-adolescence: Theory, significance and emerging prevention issues. *Clinical Psychology Review, 19,* 435-456.

Wen, M., Hawkley, L. C., & Cacioppo, J. T. (2006). Objective and perceived neighborhood environment, individual SES and psychosocial factors, and self-rated health: An analysis of older adults in Cook County, Illinois. *Social Science & Medicine, 63,* 2575-2590.

Whitfield, C. L., Anda, R. G., Dube, S. R., & Felitti, V. J. (2003). Violent childhood experiences and the risk of intimate partner violence in adults: Assessment in a large health maintenance organization. *Journal of Interpersonal Violence, 18*(2), 166-185.

Wickrama, K. A. S., & Bryant, C. M. (2003). Community context of social resources and adolescent mental health. *Journal of Marriage and Family, 65*, 850-866.

Williams, S. T., Conger, K. J., & Blozis, S. A. (2007). The development of interpersonal aggression during adolescence: The importance of parents, siblings, and family economics. *Child Development, 78*, 1526-1542.

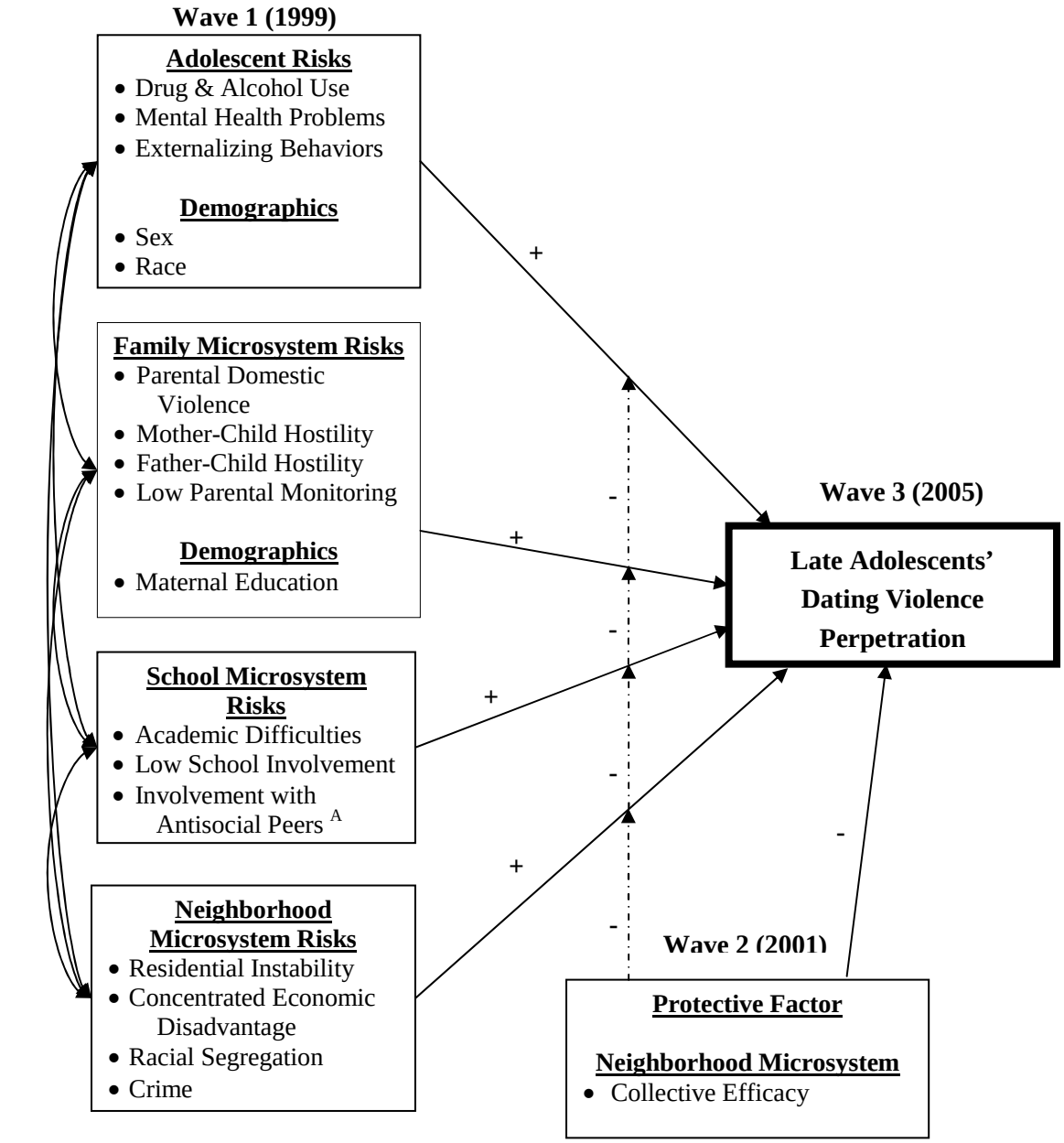
Williams, J. H., Van Dorn, R. A., Hawkins, J. D., Abbott, R., Catalano, R. F. (2001). Correlates contributing to involvement in violent behaviors among young adults. *Violence and Victims, 16*(4), 371-388.

Wilson, W. J. (1987). The truly disadvantaged: The inner-city, the underclass and public policy. Chicago: University of Chicago.

Winston, P., Angel, R., Burton, L., Chase-Lansdale, P., Cherlin, A., Moffitt, R., & Wilson, W. (1999). *Welfare, Children, and Families: A Three-City Study, Overview and Design Report.* Available at http://web.jhu.edu/threecitystudy/images/overviewanddesign.pdf.

Wolf, K. A., & Foshee, V. A. (2003). Family violence, anger expression styles, and adolescent dating violence. *Journal of Family Violence, 18*(6), 309-316.

Figure 1. Theoretical framework.



Notes: The bidirectional arrows between the microsystems represent a mesosystem. The neighborhood protective factor, collective efficacy, is shown moderating the relationships between each early microsystem risk and adolescents' later dating violence perpetration. [A] Wave 2 composite.

Figure 2. Domestic violence by collective efficacy interaction for males.

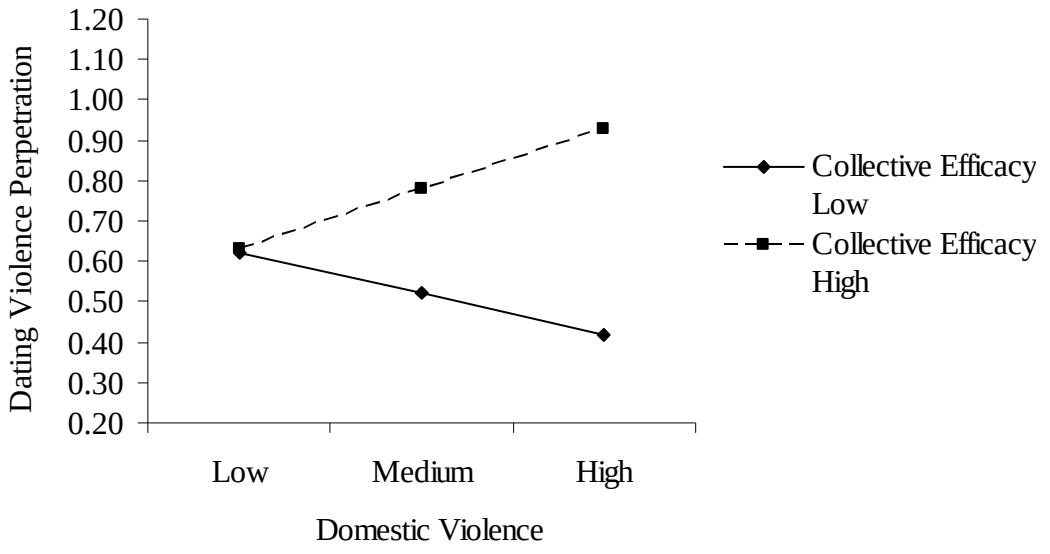


Figure 3. Academic difficulties by collective efficacy interaction for Hispanic males.

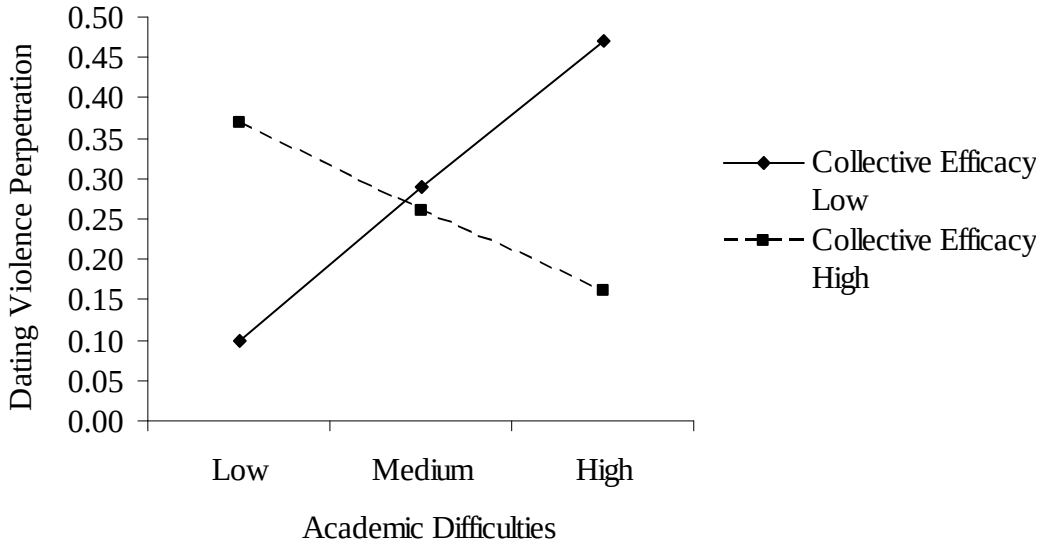


Table 1. Sample description.

	Percentage	N
Sex		
Male	47.0	346
Female	53.0	419
Race		
Non-Hispanic black	41.9	327
Hispanic	52.9	366
Non-Hispanic white & other	5.3	72
Race-by-Sex		
Males		
Non-Hispanic black	18.8	144
Hispanic	22.0	168
Non-Hispanic white & other	4.4	34
Females		
Non-Hispanic black	23.9	183
Hispanic	25.9	198
Non-Hispanic white & other	5.0	38
Maternal Education, No High School Degree	52.9	401

Notes: Total sample = 765.

Table 2. Descriptive statistics for study constructs.

	Mean	Standard Deviation	Range
Dating Violence Perpetration, Wave 3	0.92	1.53	0 – 8.00
Adolescent Risks, Wave 1			
Drug & Alcohol Use	5.25	0.97	3.00 – 13.00
Depressive Symptoms	0.90	0.85	0 – 3.22
Anxiety	0.80	0.83	0 – 3.77
Externalizing Behaviors	53.61	11.33	30.00 – 88.00
Family Risks, Wave 1			
Domestic Violence	0.19	0.37	0 – 1.73
Mother-Adolescent Hostility	3.53	0.80	1.00 – 5.00
Father-Adolescent Hostility	1.72	1.30	0 – 5.00
Low Parental Monitoring	0.47	0.13	0.33 – 1.00
School Risks, Wave 1			
Academic Difficulties	2.73	0.97	1.00 – 5.00
Low School Involvement	4.13	1.75	0 – 7.00
Involvement with Antisocial Peers, Wave 2	14.10	4.13	2.00 – 40.00
Neighborhood Risks			
Racial Segregation	0.68	0.23	0.03 – 0.99
Concentrated Economic Disadvantage	0.45	0.14	0.13 – 0.85
Residential Instability	0.43	0.09	0.18 – 0.74
Crime	7.31	2.70	0 – 14.00
Neighborhood Protection, Wave 2			
Collective Efficacy	27.43	9.65	0 – 54.00

Notes: Descriptive statistics based on imputed data – average across 5 datasets (N = 3825).

Table 3. Correlations among study constructs.

	1	2	3	4	5	6	7	8	9
1. Dating Violence Perpetration	---								
2. Drug And Alcohol Use	**.20**	---							
3. Depressive Symptoms	**.11**	**.17**	---						
4. Anxiety	**.09**	**.17**	**.72**	---					
5. Externalizing Behaviors	**.16**	**.19**	**.17**	**.17**	---				
6. Domestic Violence	**.06**	**.04**	-.02	**.03**	**.16**	---			
7. Mother-Child Hostility	**-.09**	**-.14**	**-.38**	**-.35**	**-.18**	.01	---		
8. Father-Child Hostility	.01	**.05**	**.17**	**.15**	.02	-.02	**-.16**	---	
9. Low Parental Monitoring	**.14**	**.29**	**.31**	**.25**	**.17**	**.17**	.00	**-.31**	---
10. Academic Difficulties	**.11**	**.18**	**.04**	**.05**	**.30**	**.03**	**-.07**	**.06**	**.17**
11. Low School Involvement	**.04**	**.09**	**-.07**	**-.08**	**.04**	**.04**	-.01	**.04**	**.10**
12. Involvement With Antisocial Peers	**.17**	**.24**	**.16**	**.14**	**.19**	-.02	**-.15**	.01	**.23**
13. Racial Segregation	.03	**-.06**	.01	**.04**	-.01	**.04**	**.05**	-.01	**-.03**
14. Economic Disadvantage	-.01	**-.05**	**-.06**	**-.04**	-.01	.01	**.06**	**.04**	**-.10**
15. Residential Instability	**.04**	.01	.02	.01	-.01	**-.06**	.01	.02	.03
16. Crime	.02	**.05**	-.01	**.03**	**.11**	**.07**	**-.05**	**-.04**	**.04**
17. Collective Efficacy	-.01	**-.09**	-.02	**-.04**	**-.11**	-.01	.04	-.01	**-.03**

Notes. **Bolded** $p < .05$; Based on imputed data – average of 5 datasets ($N = 3825$).

Table 3. (Continued).

	10	11	12	13	14	15	16	17
1. Dating Violence Perpetration								
2. Drug And Alcohol Use								
3. Depressive Symptoms								
4. Anxiety								
5. Externalizing Behaviors								
6. Domestic Violence								
7. Mother-Child Hostility								
8. Father-Child Hostility								
9. Low Parental Monitoring								
10. Academic Difficulties	---							
11. Low School Involvement	**.19**	---						
12. Involvement With Antisocial Peers	**.18**	**-.03**	---					
13. Racial Segregation	.01	**-.12**	**-.05**	---				
14. Economic Disadvantage	**.06**	**-.05**	**-.02**	**.46**	---			
15. Residential Instability	.02	.02	.02	**-.22**	.01	---		
16. Crime	**.05**	-.01	**.05**	**.10**	**.21**	**-.07**	---	
17. Collective Efficacy	**-.11**	-.03	**-.09**	**-.13**	**-.19**	-.01	**-.25**	---

Table 4. Percentage of types of violence perpetrated by males and females.

	Total Sample %	Males (N = 346) %	Females (N = 419) %	t-test
Total Dating Violence Perpetration	35.6	20.5	48.0	-8.32***
1. Threatened To Hit	21.6	11.8	29.6	-6.27***
2. Thrown Something	20.4	8.7	30.1	-7.91***
3. Pushed, Grabbed, Shoved	24.2	13.6	32.9	-6.57***
4. Slapped, Kicked, Bit, or Punched	16.1	4.6	25.5	-8.66***
5. Beaten	2.1	1.2	2.9	-1.71
6. Choked Or Burned	2.6	2.0	3.1	-0.95***
7. Used Or Threatened With A Weapon	3.0	1.4	4.3	-2.41*
8. Forced Unwanted Sex	1.0	1.2	1.0	0.28

Notes: ***$p < .001$; **$p < .01$; *$p < .05$.

Table 5. OLS regression risk factors predicting adolescents' dating violence perpetration W3.

	Total Sample	Sex Comparisons		Race Comparisons	
Full Model	(N = 765)	Males (N = 346)	Females (N = 419)	Black Adolescents (N = 327)	Hispanic Adolescents (N = 366)
Female Adolescent	**.28*** ** (.11)			**.29*** ** (.18)	**.32*** ** (.14)
Black [A]					
Hispanic	**-.14*****(.13)	**-.18*** (.16)	**-.13*** (.19)		
White & Other	-.02 (.21)	.05 (.25)	-.06 (.33)		
Mom Education, No High School Degree	.05 (.11)	.00 (.13)	.07 (.17)	.04 (.18)	.09 (.14)
Adolescent Risks, Wave 1					
Drug & Alcohol Use	**.10**** (.06)	**.11*** (.09)	.10 (.08)	.08 (.10)	**.15**** (.08)
Anxiety	-.03 (.09)	-.08 (.11)	-.00 (.14)	.09 (.15)	-.08 (.12)
Depressive Symptoms	.04 (.09)	**.18*** (.11)	-.04 (.14)	-.09 (.15)	.04 (.12)
Externalizing Behavior Problems	.04 (.01)	-.05 (.01)	.08 (.01)	**.12*** (.01)	.01 (.01)
Family Microsystem Risks, Wave 1					
Domestic Violence	.05 (.14)	.02 (.18)	.07 (.21)	.01 (.23)	.08 (.19)
Mother-Child Hostility	-.00 (.08)	.01 (.09)	-.01 (.12)	.00 (.12)	-.02 (.11)
Father-Child Hostility	.00 (.05)	.06 (.06)	-.02 (.07)	-.09 (.08)	.03 (.05)
Low Monitoring	**.08*** (.45)	.00 (.49)	**.14*** (.75)	.07 (.72)	.05 (.60)
School Microsystem Risks, Wave 1					
Academic Difficulties	**.07*** (.06)	.08 (.07)	.07 (.09)	.06 (.10)	.10 (.08)
Low Involvement With School	.01 (.03)	.07 (.04)	-.03 (.05)	.02 (.05)	-.03 (.04)
Involvement With Antisocial Peers, W2	**.11**** (.01)	**.15*** (.02)	**.11*** (.02)	**.21***** (.02)	.01 (.02)
Neighborhood Microsystem Risks					
Racial Segregation	.01 (.29)	.01 (.36)	-.00 (.45)	.02 (.62)	.01 (.36)
Concentrated Economic Disadvantage	-.04 (.03)	-.04 (.04)	-.03 (.05)	-.07 (.05)	-.02 (.05)
Residential Instability	.04 (.63)	.10 (.77)	.02 (.96)	.05 (1.10)	.01 (.87)
Neighborhood Crime	-.01 (.02)	-.01 (.02)	-.02 (.03)	-.03 (.03)	.05 (.03)
F, Prob > F	**7.87*****	**2.59*****	**2.97*****	**4.84*****	**4.35*****
R^2	.17	.13	.12	.21	.18

Notes: Standardized coefficients are presented (Standard errors in parentheses); [A] Omitted group; ***$p < .001$; **$p < .01$; *$p < .05$.

Table 6. OLS regression risk factors predicting adolescents' dating violence perpetration W3.

	Race by Sex Comparisons			
Full Model	Black Male Adolescents (N = 144)	Black Female Adolescents (N = 183)	Hispanic Male Adolescents (N = 168)	Hispanic Female Adolescents (N = 198)
Mom Education, No High School Degree	.01 (.21)	.07 (.28)	-.02 (.13)	.12 (.24)
Adolescent Risks, Wave 1				
Drug & Alcohol Use	**.23**** (.18)	.01 (.14)	-.01 (.09)	**.21**** (.12)
Anxiety	.08 (.17)	.14 (.24)	-.06 (.12)	-.10 (.20)
Depressive Symptoms	.02 (.17)	-.23 (.27)	.05 (.12)	.04 (.19)
Externalizing Behavior Problems	-.05 (.01)	**.20*** (.01)	.07 (.01)	-.01 (.01)
Family Microsystem Risks, Wave 1				
Domestic Violence	.003 (.27)	-.02 (.35)	-.09 (.20)	**.15*** (.29)
Mother-Adolescent Hostility	-.01 (.14)	-.004 (.19)	-.01 (.11)	-.04 (.17)
Father-Adolescent Hostility	-.04 (.10)	-.10 (.12)	.05 (.07)	.01 (.08)
Low Monitoring	-.005 (.77)	.14 (1.28)	-.03 (.59)	.08 (1.06)
School Microsystem Risks, Wave 1				
Academic Difficulties	.09 (.12)	.04 (.16)	.08 (.07)	.12 (.14)
Low Involvement With School	.07 (.06)	-.03 (.08)	.10 (.05)	-.07 (.07)
Involvement With Antisocial Peers, W2	**.19*** (.03)	**.25**** (.04)	**.18+** (.02)	-.04 (.03)
Neighborhood Microsystem Risks				
Racial Segregation	-.20 (.90)	.11 (.87)	.02 (.34)	.01 (.61)
Concentrated Economic Disadvantage	-.03 (.07)	-.07 (.08)	.05 (.05)	-.03 (.09)
Residential Instability	-.03 (1.38)	.11 (1.65)	.06 (.93)	.002 (1.38)
Neighborhood Crime	-.04 (.04)	.005 (.05)	.04 (.02)	.03 (.04)
F, Prob > F	**2.23****	**2.47****	0.99	**1.83***
R^2	.22	.19	.09	.14

Notes: Betas or standardized coefficients are presented (Standard errors are in parentheses); ****p* < .001; ***p* < .01; **p* < .05; +*p* < .10.

Table 7. OLS regression models with collective efficacy as a moderator predicting dating violence perpetration (significant models only).

Full Model	Males (N = 346)	Black Male Adolescents (N = 144)	Hispanic Male Adolescents (N = 168)
Black [A]			
Hispanic	**-.17**** (.17)		
White & Other	.05 (.25)		
Mom Education, No High School Degree	.004 (.12)	.002 (.21)	-.01 (.13)
Adolescent Risks, Wave 1			
Drug & Alcohol Use	**.13*** (.09)	**.24**** (.18)	.01 (.09)
Anxiety	-.07 (.11)	.10 (.17)	-.05 (.12)
Depressive Symptoms	**.20**** (.11)	.06 (.17)	.05 (.12)
Externalizing Behavior Problems	-.07 (.01)	-.06 (.01)	.06 (.01)
Family Microsystem Risks, Wave 1			
Domestic Violence	.02 (.18)	.01 (.27)	-.09 (.20)
Mother-Adolescent Hostility	.01 (.09)	.03 (.14)	-.02 (.11)
Father-Adolescent Hostility	.07 (.05)	-.03 (.09)	.06 (.07)
Low Monitoring	-.01 (.49)	-.01 (.76)	-.02 (.57)
School Microsystem Risks, Wave 1			
Academic Difficulties	.09 (.07)	.13 (.13)	.05 (.07)
Low Involvement With School	.07 (.04)	.08 (.06)	.08 (.04)
Involvement With Antisocial Peers, W2	**.16**** (.02)	**.22**** (.03)	.18 (.02)
Neighborhood Microsystem Risks			
Racial Segregation	.02 (.36)	-.14 (.91)	.02 (.33)
Concentrated Economic Disadvantage	-.05 (.04)	-.06 (.07)	.06 (.05)
Residential Instability	**.11*** (.77)	-.03 (1.35)	.06 (.90)
Neighborhood Crime	.03 (.02)	.03 (.04)	.03 (.02)
Neighborhood Protection, Wave 2			
Collective Efficacy	**.11*** (.01)	**.21*** (.01)	-.02 (.01)
Domestic Violence X Collective Efficacy	**.12*** (.02)		
Academic Difficulties X Collective Efficacy			**-.20*** (.01)
F, Prob > F	**2.84*****	**2.49****	1.28
R^2	.15	.25	.13

Notes: Betas or standardized coefficients are presented (Standard errors are in parentheses); [A] Omitted group; ***$p < .001$; **$p < .01$; *$p < .05$.

CHAPTER III: ADOLESCENTS' DEVELOPMENT OF HEALTHY ROMANTIC RELATIONSHIPS: THE PROTECTIVE ROLE OF FAMILY, SCHOOL, AND NEIGHBORHOOD

A paper to be submitted to *The Journal of Research on Adolescence*

Melissa P. Schnurr and Brenda J. Lohman

Abstract

The purpose of this study was three-fold: 1) to identify how neighborhood risk factors were negatively related to adolescents' development of healthy romantic relationships; 2) to assess how protective factors in adolescents' family, school, and neighborhood surroundings may promote healthy romantic relationships; and 3) to examine the protective mediating pathway that may exist between early neighborhood risk factors and adolescents' development of healthy romantic relationships in late adolescence. Three waves of data from the *Welfare, Children, and Families: A Three-City Study* were used (N = 535; Ages 16-20 at Wave 3). Structural equation modeling (SEM) techniques were utilized to examine the link among early neighborhood risk and protective factors and adolescents' healthy romantic relationships. Results are presented for the total sample and by adolescents' sex, race, and race by sex. No direct link between neighborhood risk factors and adolescents' development of healthy romantic relationships was found; however, two family microsystem protective factors were found. In particular, even when neighborhood risk factors were considered, being monitored by parents and living in a structured home environment significantly contributed to adolescents' healthy development of romantic relationships. Implications for romantic relationship education are explored.

Introduction

Adolescents begin dating as early as age 12 (Steinberg, 2008) and by age 18, virtually all adolescents have dated once, and three-fourths have had at least one steady relationship (Neeman, Hubbard, & Masten, 1995). Furthermore, dating is a common activity among adolescents from all ethnic backgrounds (Collins, 2003). Despite the fact that romantic relationships are common during adolescence, research on how to foster healthy romantic relationships, characterized by high quality, including satisfaction and a sense of support

from his or her partner, (Bouchey, 2007; Seiffge-Krenke, 2003) and a lack of dating violence among adolescents has only recently begun (Bouchey; Furman, 2002; La Greca & Harrison, 2005; Seiffge-Krenke; Shulman & Seiffge-Krenke, 2001). Consequently, most research on romantic relationships during adolescence focuses on protective factors for sexual activity (Baptiste, Tolou-Shams, Miller, McBride, & Paikoff, 2007; Lohman & Billings, 2008) and precursors to dating violence (O'Donnell, Stueve, Myint-U, Duran, Agronick, & Wilson-Simmons, 2006; Schnurr & Lohman, 2008). Thus, the majority of research on healthy relationship development is theoretical (Seiffge-Krenke) or focuses only on the maladaptive correlates of having romantic relationships.

In particular, Sullivan (1953) proposed that youth must have the capacity to be intimate with same-sex peers before healthy romantic relationships can be experienced with opposite-sex peers. This theory is supported by evidence today, which suggests that adolescents who begin intensely dating before age 15 are more likely to use alcohol, partake in delinquent activities, and engage in sexual activity (Davies & Windle, 2000). On the other hand, adolescents who begin to date moderately after age 15 have higher self-worth and greater interpersonal competence (Laursen, Furman, & Mooney, 2006) as well as experience more social support (Seiffge-Krenke, 2003) than adolescents who are not in a romantic relationship. Beyond the positive impact that healthy romantic relationships have during adolescence, these benefits are carried into adulthood and are exhibited in social, romantic, and parent-child relationships (Steinberg, 2008). Therefore, because of the lack of literature on healthy romantic relationships and the positive impact that they have during adolescence and throughout adulthood, it is imperative to learn more about factors that contribute to the development of healthy romantic relationships in order to educate young adolescents and increase their chances to develop healthy social relationships in the future.

Though there is little research on the antecedents to adolescents' development of healthy romantic relationships (Cavanagh, Crissey, & Raley, 2008), research exists on aspects of the family, school, and neighborhood that serve as protective factors for adolescents' well-being and prosocial behaviors. Specifically, adolescents who experience: involved fathers (Coley & Medeiros, 2007; Harris, Furstenberg, Marmer, 1998; Veneziano, 2000), high levels of

parental monitoring (Brookmeyer, Henrich, & Schwab-Stone, 2005; Gorman-Smith, Henry, & Tolan, 2004; Kerr, Beck, Shattuck, Kattar, & Uriburu, 2003), warm relationships with their mothers (Brookmeyer et al.; Gorman-Smith et al., 2004; Kliewer et al., 2004; Seiffge-Krenke, 2003; Seiffge-Krenke, Shulman, & Klessinger, 2001), a structured home environment (Crosnoe, Erickson, Dornbusch, 2002; Hair, Moore, Garrett, Ling, & Cleveland, 2008; Kerr et al.), high academic achievement (Crosnoe et al.; Hart, O'Toole, Price-Sharts, & Shaffer, 2007), extracurricular activity involvement (Bartko & Eccles, 2003; Fredricks & Eccles, 2005; Hart et al.), a cohesive neighborhood (Quane & Rankin, 2006; Rankin & Quane, 2002; Sampson, Raudenbush, & Earls, 1997), and positive neighborhood friends (Barry & Wentzel, 2006; Connolly, Furman, & Konarski, 2000; Shulman & Scharf, 2000) exhibit more prosocial behaviors and more positive well-being than adolescents who do not experience these protective factors. Unfortunately, not all adolescents experience these protective factors and may live in adverse neighborhood environments that increase the risk of not developing healthy romantic relationships.

Specifically, adolescents who live in neighborhoods characterized by concentrated poverty, resident instability, racial segregation and violent crime are at-risk for developing negative behaviors and psychological maladjustment including aggression, delinquency, anxiety and depressive symptoms (Gorman-Smith & Tolan, 1998; Margolin & Gordis, 2000; Schwab-Stone, Ayers, Kasprow, Voyce, Barone et al., 1995). Furthermore, each of the aforementioned adverse neighborhood factors are interrelated and often put low income, minority adolescents at particular disadvantage because they are exposed to community violence at alarming rates (Gorman-Smith et al., 2004; Ozer & Weinstein, 2004). Specifically, one-third or more of adolescents who live in the inner-city have been directly victimized, and almost all of these adolescents have been exposed to violence in their neighborhoods (Margolin & Gordis). Each of these adverse neighborhood factors is associated with negative outcomes and may, therefore, also be negatively related to adolescents' development of healthy romantic relationships. Finally, adolescents who have mothers with less than a high school education may be more likely to live in poverty stricken neighborhoods and, in turn, have more maladaptive development like depressive symptoms

and distress (Videon, 2005). Thus, whether mothers graduated from high school was also included in the models.

Despite the fact that young males and females grow up in disadvantaged surroundings, some develop healthy behaviors and are psychologically well off (Quane & Rankin, 2006; Rankin & Quane, 2002). In particular, among low income, urban black adolescents, concentrated neighborhood disadvantage operated indirectly through positive parenting and peer behaviors to result in prosocial behaviors among adolescents (Rankin & Quane, 2002). In addition, among a similar sample of adolescents, neighborhood factors like concentrated disadvantage, residential stability, and collective efficacy influenced whether youth participated in extracurricular activities, which impacted the type of neighborhood friends they had, which ultimately influenced their own behaviors (Quane & Rankin, 2006). More specifically, adolescents from disadvantaged neighborhoods who participated in activities had more prosocial friends and thus more positive outcomes, in particular, more positive academic outcomes (Quane & Rankin, 2006). Thus, the proposed protective factors in the adolescents' family, school and neighborhood environments may mediate the relationship between neighborhood risks and later healthy romantic relationships.

Consequently, the goal of the current study was to examine how the aforementioned family, school, and neighborhood factors during middle adolescence may serve as protective pathways to later healthy romantic relationships among a sample of low-income, minority adolescents using structural equation modeling (SEM). Exploring protective factors for at-risk youth is important for informing educational programs that address the development of healthy relationships among teens. In this study, healthy romantic relationships in late adolescence have three indicators, which have previously not been examined as a latent construct: high relationship quality, no dating violence perpetration, and no dating violence victimization. Furthermore, not only were models analyzed for the full sample of low-income, predominately minority adolescents, but models were also examined by adolescents' sex, race, and race by sex; past studies have identified the importance of accounting for the unique needs of males, females, black, and Hispanic adolescents in efforts to reduce violence in romantic relationships (Schnurr & Lohman, 2008).

Theoretical Framework

Bronfenbrenner's bioecological model, as well as a risk and resiliency framework, was used to guide the current research. The bioecological model posits that adolescents develop within families, and that their families function within communities (Wickrama & Bryant, 2003). Thus, multiple processes may combine to influence adolescents' development. Specifically, the original bioecological model posed that there were four hierarchical systems that act and react on each other: micro-, meso-, exo-, and macrosystems (Bronfenbrenner, 1989, 1993, 1999). A microsystem is the most basic interactional level. It is the pattern of activities, roles, and interpersonal relations experienced by the individual in any given system (e.g., family, school, neighborhood). Specifically, it contains the factors within adolescents' immediate environments. These factors directly affect the developing adolescent, and, in turn, may be affected by the adolescent. In this study, three microsystems are the focus – the adolescent's family, school, and the neighborhood.

The second system, the mesosystem, is the interaction between microsystems and involves the explanation of the negative relationship between early exposure to neighborhood risks and later healthy romantic relationships by the family, school, and neighborhood protective processes in the present study. Specifically, proximal processes are reciprocal interactions between the adolescent and the people in their immediate environments (microsystems) that drive development (Bronfenbrenner, 1994). For example, parental monitoring was the main mediating family factor between concentrated disadvantage and residential stability and black, urban adolescents' prosocial behavior (Rankin & Quane, 2002). In a study with a similar sample, involvement in extracurricular activities increased the likelihood of having more positive neighborhood friends which mediated the relationship between neighborhood factors and positive academic outcomes (Quane & Rankin, 2006). In addition, warm relationships with parents affected adolescents' socio-emotional capabilities, which positively contributed to friend relationships and, in turn, related to the capacity for closeness and commitment in romantic relationships (Scharf & Mayseless, 2001). Furthermore, neighborhood peers were an important mediating factor between concentrated disadvantage and residential stability and positive youth outcomes, including prosocial

behavior and positive friends (Rankin & Quane, 2002). Finally, concentrated poverty and residential instability acted through neighborhood collective efficacy, which was a protective factor for violence levels (Sampson et al., 1997). Though these protective factors have not all been related to healthy romantic relationship development, the aforementioned literature provides evidence that they may also serve as a protective pathway between neighborhood risks and healthy romantic relationships in the proposed study.

The next level, the exosystem, includes settings that affect the individual, but with which the individual does not interact directly (e.g., a parent's workplace). Finally, the macrosystem represents the broader social context such as cultural ideologies or values that may influence the developing adolescent. Assessing the impact of the exo- and macrosystems is beyond the scope of the current study.

Aspects of the risk and resiliency framework are useful to build on the bioecological model. Risk is considered any factor that leads to negative outcomes (Keyes, 2004). In this case, risk is represented by exposure to early neighborhood risk factors as described previously. Each of these factors is associated with adolescents' maladjustment and unhealthy behaviors. The second part of the risk and resilience model is resilience, which are factors that protect adolescents from negative outcomes (Keyes). The family, school, and neighborhood protective factors, which include: father involvement, parental monitoring, warm mother-adolescent relationship, family routines, academic achievement, involvement in extracurricular activities, perceived collective efficacy, and positive neighborhood friends may serve as a mediating pathway between the risks associated with adolescents' neighborhood surroundings and later healthy romantic relationships (Keyes). The use of both Bronfenbrenner's bioecological model and the risk and resilience framework provides a multi-context understanding of the mechanisms involved in the formation of healthy romantic relationships among low-income, minority adolescents.

Figure 1 represents the proposed theoretical framework. In the figure, early neighborhood risks have a direct, negative effect on later healthy romantic relationships. In addition, family, school, and neighborhood protective factors that adolescents experience in middle

adolescence are shown mediating the relationship between early neighborhood risk factors and healthy romantic relationships in late adolescence, specifically 6 years later.

Adolescents' sex and race is important to consider with regard to risks for unhealthy development because even within neighborhoods there is cultural variation in socialization experiences and social norms (Bronfenbrenner, 1989). Indeed, researchers have found sex and race differences in how often adolescents are exposed to community violence as well as in the consequences of this exposure. Specifically, males more often report witnessing or being victimized by violence in the community and school than females (Freudenberg, Roberts, Richie, Taylor, McGillicuddy, & Greene, 1999; Malik, Sorenson, & Aneshensel, 1997; O' Donnell et al., 2006). Furthermore, minorities, and especially black adolescents, are exposed to community violence more than whites and other minorities (Crouch, Hanson, Saunders, Kilpatrick, & Resnick, 2000; Malik et al.; Schwab-Stone et al., 1995). These findings support the testing of models for males and females and black and Hispanic adolescents separately. Testing each sub-sample will benefit educational programs that aim to promote healthy romantic relationships among adolescence by increasing knowledge of the specific needs for each group.

Central Aim & Hypotheses

Guided by Bronfenbrenner's concepts of the micro- and mesosystems from the bioecological theory and incorporating the risk and resilience framework, the central aim of this study was to understand how family, school, and neighborhood protective factors during middle adolescence may contribute to a healthy pathway to later healthy romantic relationships despite experiencing early neighborhood risks. Based on the theoretical frameworks and literature reviewed above, three key hypotheses were posed:

1. Early neighborhood risks would be negatively related to adolescents' healthy romantic relationships in late adolescence. Neighborhood risks include: residential instability, concentrated economic disadvantage, racial segregation, and crime, while healthy romantic relationships are represented by high quality and a lack of dating violence perpetration and victimization.

2. Middle adolescence protective factors would positively contribute to adolescents' healthy romantic relationships in late adolescence. The protective factors include: father involvement, parental monitoring, warm mother-adolescent relationship, family routines, academic achievement, involvement in extracurricular activities, collective efficacy, and positive neighborhood friends.
3. The middle adolescence protective factors would mediate the relationship between early neighborhood risks and adolescents' healthy romantic relationships in late adolescence.

The present study advances existing literature on adolescents' romantic relationships by including several contextual factors in the analyses, utilizing SEM, and longitudinal data. Examining how low-income, minority adolescents may benefit from protective aspects of their family, school, and neighborhood environments to form healthy romantic relationships begins to fill the gaps in current literature on adolescents' romantic relationships. Furthermore, utilizing SEM allows for the inclusion of multiple indicators of healthy romantic relationships. Finally, these hypotheses were assessed using longitudinal data from *Welfare, Children, and Families: A Three-City Study*, which is needed to advance the existing literature base (Furman, 2002). The longitudinal nature of the *Three-City Study* allows for a more thorough understanding of the complex relationships that exist among adolescents' family, school, and neighborhood environments, and how they may directly and indirectly impact the adverse environments in which they live to promote the development of healthy romantic relationships among at-risk youth.

Methods

Sample

All three waves of data from the survey component of *Welfare, Children, and Families: A Three-City Study* were utilized in the current study. The *Three-City Study* is a household-based, stratified random-sample of over 2,000 low-income children and their caregivers in low-income neighborhoods in Boston, Chicago, and San Antonio. In 1999, over 40,000 households were screened, with a 90% response rate, by professionally trained interviewers. Eligibility was based on age of the children in the household, race, family income, and

marital status. In selected families with household incomes of 200% or less than the poverty line, interviewers randomly selected one focal child per family, and invited the focal child and his or her primary female caregiver to participate. This focal child was either between the ages of birth to 5 or 10 to 15 years at wave 1. Out of these selected families, 82% agreed to participate in the study, resulting in an overall response rate of 74%. For further sampling details see Winston and colleagues (1999). An average of 16 months after the first wave of data collection in 1999, approximately 88% of the families completed a second interview in 2001. A third interview occurred in 2005, with an overall retention rate of 80%.

For this study, the original sample of early adolescents who were aged 10 to 15 years in 1999 (M = 11.91, SD = 1.42; N = 1160) was the focus. Of the original 1160 youth from wave 1, 1046 were interviewed an average of 16 months later in wave 2 (90%), and 929 were interviewed four years later in 2005 during wave 3 (80%). Thus, the early adolescents were now late adolescents and ranged in age from 16 to 20 years (M = 17.81; SD = 1.45). Only youth who were currently in a romantic relationship completed the romantic relationship quality section during the wave 3 interview (N = 535). Thus, 58% of the late adolescents in wave 3 were currently in a romantic relationship and 42% were not. Finally, attrition analyses were conducted to determine whether adolescents assessed in the present analysis vary on key protective factors and neighborhood risk characteristics compared to those adolescents who only completed the wave 1 interview. Overall, adolescents did not vary on 11 of 12 of the key dimensions studied, including father involvement, academic achievement, collective efficacy, and neighborhood crime. However, adolescents who participated in wave 3 had higher extracurricular activity involvement than those who did not participate.

Table 1 includes a sample description of adolescents' race, sex, race by sex, and maternal education. The sample is predominately non-Hispanic black and Hispanic, and is 58% female. Of the 535 adolescents in the current sample, over 90% of the caregivers reporting were the biological mothers in wave 1. In just under half of these households the mother did not have a high school diploma. Descriptive statistics for all continuous predictors and the indicators of the latent construct, healthy romantic relationships, are shown in Table 2. Note that there is little variation in the neighborhood microsystem risk variables; implications are

discussed below in the Measures section under the following subheading: *2000 U. S. Decennial Census variables.* Finally, correlations among study constructs are displayed in Table 3.

Procedure

In wave 1, interviewers selected one focal child and his/her caregiver from each of the eligible households to complete cognitive assessments and in-person interviews. These participants were then interviewed at each data collection period. Adolescents and caregivers completed surveys using CAPI, Computer Assisted Personal Interview. CAPI allows trained field interviewers to enter responses into a laptop computer during the interview process. When answering potentially sensitive questions like those related to their romantic relationships, sexuality, or drug and alcohol use, adolescents and mothers used an Automated Computer Assisted Survey Interview (ACASI), which allows respondents to enter answers directly into the laptop computer while listening to questions on headphones. The use of ACASI has been shown to increase the validity of reporting on sensitive topics (Turner et al., 1998). Adolescents' interviews lasted approximately 30 minutes and took place separate from their mothers' interviews. At each data collection period, mothers participated in two-hour interviews, which asked questions about themselves, their families, households, and children.

Relevant to this study, mothers answered the same set of questions about family processes, neighborhood characteristics, and demographics in waves 1, 2, and 3. Adolescents were asked the same set of questions about their relationships with their mothers and fathers in all three waves. In wave 2, an additional set of questions regarding the teens' relationships with their peers was added. These questions were also asked at the final wave of data collection. Finally, in wave 3, a more explicit assessment of their romantic relationships, including their perceived relationship quality and involvement with dating violence, was examined. In the current study, neighborhood crime and mother's education level came from wave 1, and wave 2 composites were used for all potential mediating protective factors predicting wave 3 healthy romantic relationships, which are represented by relationship quality and no dating violence perpetration or victimization.

Measures

Dependent Variable

Healthy romantic relationships. In wave 3, adolescents responded about their current or past romantic relationships, including aspects of relationship quality and experiences with dating violence. Adolescents who were currently in a romantic relationship were assessed on relationship quality with eight items adapted from Levesque (1993), which asked about overall satisfaction with and commitment to the relationship as well as corresponding questions about helping each other through difficult times, being concerned about how each other feels, and comforting each other. Item responses, which were on a 1 (*strongly disagree*) to 4 (*strongly agree*) scale, were averaged together so higher scores reflect higher relationship quality ($\alpha = .87$).

To further represent healthy romantic relationships, two dummy coded variables were also included as indicators, which represented no dating violence perpetration or victimization in any former or current relationships. Adolescents were asked eight similar items each for perpetration and victimization from a modified version of the Conflict Tactics Scale (CTS; Straus, 1979). Specifically, eight items addressed dating experiences with threats, hitting, kicking, or beating, for example, using 1 (*yes*) and 0 (*no*) responses, where eight of the items described exhibiting these behaviors toward a romantic partner and eight of the items described receiving these behaviors from a romantic partner. For use in the current analysis, responses were then dummy coded so a 0 represented answering yes to any of the eight items, reflecting ever having experienced dating violence perpetration and 1 representing not ever having experienced dating violence perpetration. A dummy variable for victimization was created the same way. To support the use of relationship quality, no dating violence perpetration, and no dating violence victimization as indicators of the latent construct healthy romantic relationships, confirmatory factor analysis was conducted before models were tested to address the research hypotheses (see Figure 2), and the use of all three variables as indicators was supported. Specifically, relationship quality had a loading of .40, no dating violence perpetration had a loading of .85, and no dating violence victimization had a loading of .86. These factors together contributed to 54.06% of the total variance.

Independent Variables

Middle Adolescence Family Microsystem Protective Factors

Father involvement. In wave 2, mothers responded to seven items about their children's contact with their fathers in the last 12 months using a scale from 1 (*never in the past 12 months*) to 5 (*almost every day*); the extent the father is involved in daily tasks with the child using a scale from 1 (*none*) to 3 (*most of the responsibility*); how often the mother can count on the father to care for the child using a scale from 1 (*never*) to 5 (*always*); and closeness to the father and his family using a scale from 1 (*not very close*) to 4 (*extremely close*). Items were standardized and averaged so high scores reflect more father involvement ($\alpha = .94$).

Parental monitoring. Adolescents were asked about their perception of parental monitoring in wave 2 of data collection. Items included a series of questions regarding mothers' awareness of friendships, mothers' knowledge of location of the adolescent when away from the mother, and mothers' knowledge of how free time and money are spent. At each wave a composite score of the five items was created by dividing the item responses by the total number of response categories for the item (Steinberg et al., 1991). Next, the items were averaged across all monitoring items to create the overall score, with higher scores reflecting higher parental monitoring ($\alpha = .72$).

Warm mother-adolescent relationship. Adolescents completed the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987) to report on their relationship with their mothers in wave 2 of the survey. Twelve items were used to assess several aspects of the mother-child relationship with a 1 (*never true*) to 5 (*always true*) scale. The measured aspects included feelings of warmth and connectedness (all 12 items: $\alpha = .82$), trust and communication ($\alpha = .78$), and anger and alienation ($\alpha = .74$). A composite was created by reverse coding the anger and alienation items and creating a mean of all of the items scored, with higher scores representing greater warmth and connection between mother and adolescent.

Family routines. Mothers responded to five items about their family's routines in wave 2. Specifically, items addressed how often their family members talk or play together, eat breakfast together, eat meals at the same time each day, and how often their children do

homework and go to bed at the same time each day (Jensen, James, Boyce, & Hartnett, 1983). Responses ranged from 1 (*almost never*) to 4 (*always*) and were averaged together so higher scores reflect more frequent use of family routines or a structured family environment ($\alpha = .64$).

Middle Adolescence School Microsystem Protective Factors

Academic achievement. Mothers reported about their child's academic achievement in wave 2 of data collection. It was measured using reports of grades received in school according to the adolescent's most recent report card, using a scale of 1 (mostly *A's*) to 5 (mostly *F's*). The item was reverse coded so that higher scores reflect more achievement.

Extracurricular activity involvement. Adolescents were asked about their schooling in wave 2 of data collection (Elliot, Wilson, Huizinga, Sampson, Elliott, & Rankin, 1996). Seven items in the schooling section assessed the extent adolescents were involved in extracurricular activities in the prior 12 months using a 1 (*yes*) or 0 (*no*) response. Activities ranged from earning awards for performances to participating in after-school activities, including athletics. Items were summed with higher scores reflecting more extracurricular activity involvement ($\alpha = .65$).

Middle Adolescence Neighborhood Microsystem Protective Factors

Collective efficacy. Mothers answered nine items about the neighborhood they live in using a scale similar to Robert Sampson's Collective Efficacy Scale (see Sampson et al., 1997) in wave 2. Four items were recoded from a four category response *(strong disagree to strong agree)* to match this five category response ($\alpha = .87$). Items were summed so higher scores reflect more perceived collective efficacy.

Positive friends. In wave 2, adolescents were asked about the positive influence of neighborhood friends. Specifically, six items asked how the respondents friends prosocial behavior was with a 1 *(yes)* 0 *(no)* response. Items include questions regarding friends' getting good grades in school, interest in school, and looking up to kids who study ($\alpha = .80$). One item was reverse coded to match the other items. Items were summed, with higher scores reflecting more positive friend behaviors.

Early Neighborhood Microsystem Risk Factors

2000 U. S. Decennial Census variables. To better understand the indirect impact that the middle adolescence family, school, and neighborhood microsystem protective factors have on adolescents' later healthy romantic relationships, neighborhood risk factors were addressed. Three of the four factors came from the 2000 U. S. Decennial Census. The U. S. Census data is divided into small homogenous geographic regions called census tracts, which are designed based on population characteristics, economic status, and living conditions with the intent that the boundaries are relatively permanent (U. S. Census Bureau, 1997). These tracts can vary in size from 1,000 to 8,000 people, with an average of roughly 4,000 individuals each. Geocodes, which were included in the *Three-City Study*, were utilized to match the adolescent's residence in the present study to Census tracts.

Multilevel SEM was first utilized in the present study to account for the nested nature of the data. In this analysis, Census tracts (N = 166) were combined based on geography in over 93% of cases to ensure that at least 80% of the neighborhood clusters had more than 10 adolescents (Maas & Hox, 2005). Weighted averages of the Census variables (described below) were then calculated and utilized in the multilevel SEM analysis. Multilevel SEM models revealed no significant slope or intercept variation across neighborhood clusters. This lack of neighborhood variation thus warranted the use of one-level SEM. Finally, weighted averages were not used, but rather Census tract-level data was utilized in the present study. Of the 166 tracts, the average number of adolescents per tract was 3.22.

The following variables were used from the 2000 U. S. Decennial Census to indicate *concentrated poverty*: percent of families below poverty and percent owner-occupied housing (Gorman-Smith, Tolan, & Henry, 2000). Percent owner-occupied housing was subtracted from one so that the number would represent the percent of residents who did not own their home. Next, a score representing concentrated poverty was generated by averaging the two indicators corresponding to their census tract information. The percent of racial/ethnic minorities was used to represent *racial segregation* (Wickrama & Bryant, 2003). Finally, the percent of neighborhood residents who had moved in the last five years was used to address *residential instability.*

Neighborhood crime. In wave 1, mothers responded to 11 items about the degree to which aspects of their neighborhoods were a problem on a 1 (*not a problem*) to 3 (*a big problem*) scale. Four of the items that addressed problems with crimes such as: burglaries, thefts, assaults, muggings, gangs, and drugs were summed to create a composite of neighborhood crime ($\alpha = .84$).

To support the use of residential instability, concentrated economic disadvantage, racial segregation, and crime as indicators of the latent construct neighborhood risks, confirmatory factor analysis was conducted before models were tested to address the research hypotheses (see Figure 3), but did not support their use as indicators of one latent construct. Specifically, residential instability had a loading of -.41, concentrated economic disadvantage had a loading of .79, racial segregation loaded at .82, and crime had a loading of .44. Together, these factors contributed to less than 45% of the total variance. Thus, each neighborhood risk factor was tested individually in a direct effect model with healthy romantic relationships.

Demographics[2]

Race and sex. Adolescents' race and sex were obtained at wave 1. Three categories were created to represent the adolescent's race: non-Hispanic black, Hispanic, and non-Hispanic white and other races. The referent group was non-Hispanic black. Adolescents' sex was represented with one dichotomous variable, with a 1 representing a female.

Maternal education. A dichotomous variable was created to assess maternal education status at wave 1 with a 1 representing less than a high school education and a 0 representing at least a high school education.

Results

It was hypothesized that the early neighborhood risk factors would be negatively associated with adolescents' later healthy romantic relationships and that this relationship would be mediated by family, school, and neighborhood protective factors. One level SEM

[2] Models were first examined with family income, family structure, time in neighborhood, and number of moves, as well as adolescents' race and sex and mother's education. For parsimony, final models are presented and discussed with only adolescents' race, sex, and mother's education because family income (M = \$1130.60 per month, SD = \$855.49), family structure (81.3% single parent), time in neighborhood (M = 112.68 months, SD = 133.30), and number of moves (M = 1.30, SD = 1.25) were not significant and results did not change with their exclusion.

models were run for the total sample as well as by adolescents' race, sex, and race by sex, separately in AMOS 17.0. First, an overview of sample characteristics associated with the three indicators of the latent construct, healthy romantic relationships is provided, followed by a discussion of the SEM models that were examined for each of the three hypotheses.

Model comparisons were made using Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA; Levendosky, Leahy, Bogat, Davidson, & von Eye, 2006). Acceptable values for CFI are greater than 0.9 and for RMSEA are less than 0.05 (Arbuckle, 2007). Comparisons of coefficients between race, sex, and race by sex subgroups were made using critical ratios of difference (C.R.; Byrne, 2001). Missing data on these continuous predictors ranged from 2.1 to 10 percent, with a mode of 8.2 percent. AMOS 17.0 uses full-information maximum likelihood (FIML) estimation to account for missing continuous data (Arbuckle, 2007), which was ranked 'superior' in comparison to other methods that deal with missing data, such as multiple imputation, in SEM models (Olinsky, Chen, & Harlow, 2003). Missing values in categorical variables, such as race, sex, and mother's education, were addressed by imputing responses from the same participant in other waves of data prior to analysis (mode = 2.1%). The sample was created based on available data for the three indicators of healthy romantic relationships; therefore, these variables did not have any missing values. Additionally, unweighted models are presented because outcomes using FIML are similar to those using probability weights; therefore, the use of both would overly bias the estimates (Ibrahim, Chen, Lipsitz, & Herring, 2005).

Healthy Romantic Relationships

The three indicators of healthy romantic relationships, high relationship quality, a lack of dating violence perpetration, and a lack of dating violence victimization, were examined. Sixty percent of the adolescents reported no dating violence perpetration and 58% reported no dating violence victimization. Average relationship quality was 3.5 out of 4, which indicates that most adolescents perceived their romantic relationships to be high in quality. To assess whether differences existed in the three indicators of healthy romantic relationships across adolescents' race and sex, an analysis of variance (ANOVA) and t-test was conducted, respectively. The only significant difference found was that females perpetrated more dating

violence than males ($t(532.31) = 6.25$, $p < .001$); however, the majority of violent acts were mild (e.g., pushing, grabbing, shoving), rather than severe (e.g., beating or burning). In addition, significant differences in types of perpetration were found between the sexes. Specifically, females perpetrated more violence of all types compared to males, except for forced sexual activity, in which no significant difference was found. There were no differences in the three indicators for adolescents' race.

Finally, a cross-tabs analysis was conducted by adolescents' sex to examine the potential overlap between perpetration and victimization for males and females. Table 4 displays the results. In particular, 23% ($N = 52$) of males reported both perpetrating dating violence and being victimized, and 32% ($N = 98$) of females reported both perpetrating dating violence and being victimized. Furthermore, the Chi-square test for both males ($\chi^2 = 69.43$) and females ($\chi^2 = 74.11$) is significant ($p < .001$), which indicates that dating violence perpetration and victimization are not independent. Furthermore, Phi and Cramer's V are also significant for males (.55, $p < .001$) and females (.49, $p < .001$) suggesting a linear association between dating violence perpetration and victimization.

Structural Equation Modeling Analysis

SEM models were examined in AMOS 17.0 to address the three research hypotheses. First, given that the neighborhood risks did not all hang well together (see Measures section for results), the direct effect between each individual neighborhood risk factor and later healthy romantic relationships was examined. Second, all of the protective factors were entered into a model predicting later healthy romantic relationships. Finally, no mediation models were examined because hypothesis one was not supported, which is described next, followed by a description of results associated with hypothesis two.

Neighborhood Risk Factors on Healthy Romantic Relationships

Residential instability, concentrated economic disadvantage, racial segregation, and neighborhood crime were individually assessed as negative predictors of adolescents' healthy romantic relationships to address hypothesis one. There were no significant relationships between any of the neighborhood risks and healthy romantic relationships for the total sample or when models were tested separately for adolescents' sex, race, and race by sex.

Due to the lack of a significant direct relationship between neighborhood risk and adolescents' later development of healthy romantic relationships, testing hypothesis three was precluded.

Protective Factors

One SEM model addressed hypothesis two by examining the link between all of the proposed protective factors and adolescents' healthy romantic relationships in a single model, which was tested separately for the total sample and by adolescents' sex, race, and race by sex. The following results were unchanged, even when the neighborhood risks factors were included in the model as covariates (see Tables 5 and 6). When the model was examined for the total sample, none of the protective factors were significant. Next, the model was examined for males and females separately. The female model revealed no significant protective factors; however, perceived collective efficacy and Hispanic versus black adolescents was significant in the male model. Unexpectedly, for male adolescents, a one standard deviation increase in perceived collective efficacy in early adolescence resulted in a .23 standard deviation decrease in healthy romantic relationships in late adolescence. The impact of collective efficacy on healthy romantic relationships was statistically different for males and females (C.R. = 2.04, $p < .05$); however, Hispanic adolescents and black adolescents did not significantly differ on their healthy romantic relationships (C.R. = 1.49, $p > .05$), even though it was significant in the male model.

The full model was then tested for Hispanic and black adolescents separately. For Hispanic and black adolescents, males had significantly healthier romantic relationships than females, though this was not a statistically significant difference between models (C.R. = -.34, $p > .05$). In addition, for Hispanic adolescents, a one standard deviation increase in parental monitoring in early adolescence resulted in a .16 standard deviation increase in healthy romantic relationships in late adolescence ($p < .01$). On the other hand, for black adolescents, a one standard deviation increase in family routines in early adolescence resulted in a .01 standard deviation increase in healthy romantic relationships in late adolescence ($p < .05$). The impact of parental monitoring (C.R. = 2.74, $p < .05$) and family

routines (C.R. = -2.32, $p < .05$) on healthy romantic relationships was statistically different for Hispanic and black adolescents.

Finally, the full model was examined separately for Hispanic males and females and black males and females. No significant protective factors emerged for Hispanic females, but for Hispanic males, living in a structured home environment, as characterized by family routines, was related to their healthy romantic relationship development in late adolescence, though this difference between Hispanic males and females was not significant in coefficient comparisons (C.R. = -1.70, $p > .05$). Next, high levels of collective efficacy, unexpectedly, resulted in less healthy romantic relationships for black males, and this was a significant difference between black males and females (C.R. = 1.98, $p < .05$). On the other hand, living in a structured home environment was protective for black females. Specifically, black female adolescents were more likely to develop healthy romantic relationships if their mother perceived the home environment as structured; however, the impact of family routines on healthy romantic relationships did not significantly differ for black male and female adolescents (C.R. = .61, $p > .05$).

Discussion

This study contributes to the current body of literature on adolescents' development of healthy romantic relationships by including several contextual protective factors in the analyses and utilizing SEM with longitudinal data of an understudied population – a sample of low-income, predominately minority adolescent males and females. Over half of the adolescents had not been involved in dating violence and most adolescents perceived their romantic relationships to be high in quality. Although none of the neighborhood risk factors was related to adolescents' development of healthy romantic relationships, differences emerged in the protective factors for black males and females as well as Hispanic males and females. The findings provide support for Bronfenbrenner's bioecological theory and the importance of considering several microsystems and mesosystems to better understand how protective factors in multiple contexts impact adolescents' romantic relationships. A comparison of these results with prior research, limitations of the current study, future

directions for research on dating violence in adolescence, and prevention implications are discussed.

The Importance of the Family Context

The present study adds to a wealth of literature on the importance of the family environment for adolescents' development; in this case, healthy romantic relationship development. In particular, even when neighborhood risk factors were considered, being monitored by parents and living in a structured home environment significantly contributed to adolescents' healthy development of romantic relationships. Given that the *Three-City Study* sample was chosen based on whether families were 200% of the poverty line or below (Winston et al., 1999), these adolescents may have been living in neighborhoods characterized by residential instability, racial segregation, and violence (Shaw & McKay, 1942). Given this maladaptive environment, feeling protected by parents through monitoring and having a structured home environment may have contributed stability to adolescents' lives and ultimately promoted healthy development.

Neither family routines, nor any other protective factors significantly contributed to Hispanic females' healthy romantic relationship development, which may be because other factors that were not considered in the present study are more important for this group of teens. According to Bronfenbrenner's bioecological theory, several microsystems act and react to the developing adolescent, and although the present study included risk factors from several microsystems, there may be omitted variable bias. For example, siblings were not included in the *Three-City Study* and can have a positive impact on children's (Pike, Coldwell, & Dunn, 2005) and adolescents' development (Kramer & Kowal, 2005; Updegraff, McHale, Whiteman, Thayer, & Delgado, 2005). Indeed, a study on Mexican-American sibling relationships found that the quality of the relationship was linked to *familismo* values and practices and stronger associations were found between sisters than brothers (Updegraff et al.). Thus, for Hispanic females, sibling relationships are important, and in the present study, may be more important than other family factors as well as the school and neighborhood environment.

Unexpected Findings

Contrary to expectations, neither of the school factors were significant protective factors, nor was affiliation with positive neighborhood friends, which may be because family protective factors were more important for this sample. Furthermore, collective efficacy decreased healthy romantic relationship development for males, and in particular, black males. Specifically, when mother's perceived high levels of cohesion and social control in their neighborhoods, males and black males were less likely to report healthy romantic relationships. In other words, given that healthy romantic relationships were indicated by high relationship quality and a lack of dating violence perpetration and victimization in the present study, males and black males were more likely to report less quality and/or some form of dating violence when their mothers perceived high levels of collective efficacy. Perhaps these youth do not have positive male role models in their immediate environment; living in neighborhoods characterized by concentrated poverty, such as the neighborhoods in the present study, increases the likelihood of having neighbors who come and go and higher levels of crime (Shaw & McKay, 1942), which decreases the likelihood of male adolescents having consistent, positive male role models. In turn, male adolescents model the negative behaviors that they witness (Aisenberg & Ell, 2005; Bandura, 1977).

Finally, none of the neighborhood risk factors contributed negatively to adolescents' development of healthy romantic relationships. This may be due to a lack of variation in the sample, given that neighborhoods in the *Three-City* Study were chosen if they were 200% of the poverty line or below (Winston et al., 1999). Moreover, the lack of variation may explain why family income did not influence the models, and was therefore left out of the final analysis for parsimony. Extremely low income neighborhoods, in particular, are often characterized by residential instability, racial segregation, and neighborhood crime, which are all interrelated according to social disorganization theory (Shaw & McKay, 1942). Furthermore, because the neighborhoods in the *Three-City Study* are homogenous with respect to economic disadvantage, it may be that adverse factors in the family and at school have more of a negative impact on adolescents' healthy development. For example, teens may spend more time with family or peers at school because they feel unsafe in their

neighborhood surroundings (Margolin & Gordis, 2000). This differential time use between family/school and neighborhood may contribute to a greater negative influence of the family and school environment on adolescents' healthy romantic relationship development in the present study.

Application of Results

Given that different protective factors were significantly related to different race and sex groups' healthy romantic relationship development, utilizing a multi-context bioecological systems theory approach should be applied in future studies to understand adolescents' behavior and to develop education programs (Jordan, 2002). Overall, parental monitoring and family routines experienced in middle adolescence were positively related to healthy romantic relationships in late adolescence, even when considering neighborhood risks. These results support the idea that relationship education programs must include more than characteristics of adolescents and their romantic partners, but also include parents in the curricula. Parents, in particular, not only can model appropriate relationship behaviors for their adolescents (Bandura, 1977), but must also be educated about the importance of monitoring their teens' behavior and providing a structured home environment. Indeed, these findings support past research that monitoring teens' behavior (Kerr et al., 2003; Quane & Rankin, 2006; Rankin & Quane, 2002) and providing a structured home environment (Crosnoe et al., 2002; Hair et al., 2008; Kerr et al.) promotes prosocial development and reduces negative behaviors. Monitoring and family routines may promote well-being by providing adolescents with quality time with their parents to learn and observe adaptive behaviors.

This may be even more important for low-income, minority adolescents who live in urban neighborhoods, similar to the sample in the present study, because of the potential for their neighborhood surroundings to be unsafe as characterized by economic disadvantage, neighbors who come and go, racial segregation, and high levels of crime (Margolin & Gordis, 2000). Though the present study's data did not allow for comparisons with adolescents from more affluent backgrounds, parental monitoring and family routines were

the only two significant protective factors, even when considering neighborhood risks, in the present study. Indeed, a positive family environment mattered for these urban adolescents.

Given the results of the present study, the first step in romantic relationship education is to inform males and females on the types of dating violence that exist as well as healthy characteristics of relationships. Next, including parents in prevention programs will allow important family precursors to be discussed, such as monitoring and family routines. Finally, educators should be sensitive to the differential effects of these protective factors on healthy romantic relationships in order to meet the specific needs of black males and females as well as Hispanic males and females.

Limitations and Future Directions

Though there were several strengths, the present study has some limitations as well. First, the sample is predominantly low socioeconomic status; therefore, the proposed relationships can not be compared across different economic backgrounds. Second, comparisons between white adolescents and underrepresented racial/ethnic groups were not possible due to a small sample of white adolescents in the present study. Utilizing a sample with large numbers of black, Hispanic, and white adolescents would be beneficial in the future in order to analyze how protective factors for adolescents' healthy relationship development may vary by underrepresented populations compared to whites. Third, only heterosexual relationships were included in the current analyses. Although more research needs to be done to increase the understanding of healthy romantic relationships for heterosexual dating couples, research on homosexual dating couples is in great need of attention. Finally, the study is limited in that only one partner in the relationship reported on his/her experiences with violence and satisfaction and quality in romantic relationships. In the future, researchers should aim to retain information from both members of the dating couple in order to get a better representation of dating violence and quality.

Acknowledgements

I gratefully acknowledge the support of the following organizations. Government agencies: National Institute of Child Health and Human Development (RO1 HD36093 "Welfare Reform and the Well-Being of Children"), Office of the Assistant Secretary of

Planning and Evaluation, Administration on Developmental Disabilities, Administration for Children and Families, Social Security Administration, and National Institute of Mental Health. Foundations: The Boston Foundation, The Annie E. Casey Foundation, The Edna McConnell Clark Foundation, The Lloyd A. Fry Foundation, The Hogg Foundation for Mental Health, The Robert Wood Johnson Foundation, The Joyce Foundation, The Henry J. Kaiser Family Foundation, The W.K. Kellogg Foundation, The Kronkosky Charitable Foundation, The John D. and Catherine T. MacArthur Foundation, The Charles Stewart Mott Foundation, The David and Lucile Packard Foundation, The Searle Fund for Policy Research, and The Woods Fund of Chicago. A special thank you is extended to our research firm, Research Triangle Institute (RTI), as well as to the children and caregivers who graciously participated in the *Three-City Study* and gave us access to their lives.

References

Aisenberg, E., & Ell, K. (2005). Contextualizing community violence and its effects: An ecological model of parent-child interdependent coping. *Journal of Interpersonal Violence, 20,* 855-871.

Arbuckle, J. L. (2007). *AMOS 16.0 user's guide*. Spring House, PA: AMOS Development Corporation.

Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence, 16,* 427-454.

Baptiste, D. R., Tolou-Shams, M., Miller, S. R., McBride, C. K., & Paikoff, R. L. (2007). Determinants of parental monitoring and preadolescent sexual risk situations among African American families living in urban public housing. *Journal of Child and Family Studies, 16,* 261-274.

Bandura, A. (1977). *Social Learning Theory.* New York: General Learning Press.

Barry, C. M., & Wentzel, K. R. (2006). Friend influence on prosocial behavior: The role of motivational factors and friendship characteristics. *Developmental Psychology, 42*(1), 153-163.

Bartko, W. T., & Eccles, J. S. (2003). Adolescent participation in structured and unstructured activities: A person-oriented analysis. *Journal of Youth and Adolescence, 32,* 233-241.

Bouchey, H. A. (2007). Perceived romantic competence, importance of romantic domains, and psychosocial adjustment. *Journal of Clinical Child and Adolescent Psychology, 36,* 503-514.

Bronfenbrenner, U. (1989). Ecological systems theory. *Annals of Child Development, 6,* 187-249.

Bronfenbrenner, U. (1993). The ecology of cognitive development: Research models and fugitive findings. In R. H Wozniak & K. W. Fischer (Eds.), *Development in context: Acting and thinking in specific environments.* Hillsdale, NJ: Erlbaum.

Bronfenbrenner, U. (1994). Ecological models of human development. In T. Husen, & T. N. Postelthwaite (Eds.), *International encyclopedia of education* (pp. 1642-1647). Oxford, UK: Pergamon Press.

Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S. L. Friedman, & T. D. Wachs (Eds.), *Measuring environment across the life span: Emerging methods and concepts* (pp. 3-28). Washington DC: APA.

Brookmeyer, K. A., Henrich, C. C., & Schwab-Stone, M. (2005). Adolescents who witness community violence: Can parent support and prosocial cognitions protect them from committing violence? *Child Development, 76,* 917-929.

Byrne, B. M. (2001). *Structural equation modeling with AMOS.* Psychology Press.

Cavanagh, S. E., Crissey, S. R., & Raley, R. K. (2008). Family structure history and adolescent romance. *Journal of Marriage and Family, 70,* 698-714.

Coley, R. L., & Medeiros, B. L. (2007). Reciprocal longitudinal relations between nonresident father involvement and adolescent delinquency. *Child Development,* 78, 132-147.

Collins, W. A. (2003). More than myth: The developmental significance of romantic relationships during adolescence. *Journal of Research on Adolescence, 13,* 1-24.

Connolly, J., Furman, W., & Konarski, R. (2000). The role of peers in the emergence of heterosexual romantic relationships in adolescence. *Child Development, 71,* 1395-1408.

Crosnoe, R., Erickson, K. G., & Dornbusch, S. M. (2002). Protective functions of family relationships and school factors on the deviant behavior of adolescent boys and girls: Reducing the impact of risky friendships. *Youth & Society, 33,* 515-544.

Crouch, J. L., Hanson, R. F., Saunders, B. E. Kilpatrick, D. G., & Resnick, H. (2000). Income, race/race, and exposure to community violence in youth: Results from the National Survey of Adolescents. *Journal of Community Psychology, 28,* 625-641.

Davies, P. T., & Windle, M. (2000). Middle adolescents' dating pathways and psychosocial adjustment. *Merrill-Palmer Quarterly, 46,* 90-118.

Elliot, D. S., Wilson, W. J., Huizinga, D., Sampson, R. J., Elliott, A., & Rankin, B. (1996). The effects of neighborhood disadvantage on adolescent development. *Journal of Research in Crime and Delinquency, 33,* 389-426.

Fredricks, J. A., & Eccles, J. S. (2005). Developmental benefits of extracurricular involvement: Do peer characteristics mediate the link between activities and youth outcomes? *Journal of Youth and Adolescence, 34,* 507-520.

Freudenberg, N., Roberts, L., Richie, B. E., Taylor, R. T., McGillicuddy, K., & Greene, M. B. (1999). Coming up in the boogie down: The role of violence in the lives of adolescents in the South Bronx. *Health Education and Behavior, 26,* 788-805.

Furman, W. (2002). The emerging field of adolescent romantic relationships. *Current Directions in Psychological Science, 11,* 177-180.

Gorman-Smith, D., Henry, D. B., & Tolan, P. H. (2004). Exposure to community violence and violence perpetration: The protective effect of family functioning. *Journal of Clinical Child & Adolescent Psychology, 33,* 439-449.

Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development & Psychopathology, 10,* 101-116.

Gorman-Smith, D., Tolan, P. H., Henry, D. B. (2000). A developmental-ecological model of the relation of family functioning to patterns of delinquency. *Journal of Quantitative Criminology, 16,* 169-198.

Hair, E. C., Moore, K. A., Garrett, S. B., Ling, T., & Cleveland, K. (2008). The continued importance of quality parent-adolescent relationships during late adolescence. *Journal of Research on Adolescence, 18,* 187-200.

Harris, M. H., Furstenberg, F. F., & Marmer, J. K. (1998). Parental involvement with adolescents in intact families: The influence of fathers over the life course. *Demography, 35,* 201-216.

Hart, J. L., O'Toole, S. K., Price-Sharps, J. L., & Shaffer, T. W. (2007). The risk and protective factors of violent juvenile offending: An examination of gender differences. *Youth Violence and Juvenile Justice, 5,* 367-384.

Ibrahim, J. G., Chen, M-H, Lipsitz, S. R., & Herring, A. H. (2005). Missing data methods for generalized linear models: A review. *Journal of the American Statistical Association, 100*(469), 332-346.

Jensen, E. W., James, S. A., Boyce, W. T., & Hartnett, S. A. (1983). The family routines inventory: Development and validation. *Social Science and Medicine, 17,* 201-211.

Jordan, K. (2002). School violence among culturally diverse populations. In L. A. Rapp-Paglicci, A. R. Roberts, & J. S. Wodarski (Eds.), Handbook of violence (pp. 326–346). New York: John Wiley & Sons.

Kerr, M. H., Beck, K., Shattuck, T. D., Kattar, C., & Uriburu, D. (2003). Family involvement, problem and prosocial behavior outcomes of Latino youth. *American Journal of Health Behavior, 27,* S55-S65.

Keyes, C. L. M. (2004). Risk and resilience in human development: An introduction. *Research in Human Development, 1*(4), 223-227.

Kliewer, W., Cunningham, J. N., Diehl, R., Parrish, K. A., Walker, J. M., Atiyeh, C., Neace, B., Duncan, L. et al. (2004). Violence exposure and adjustment in inner-city youth: Child and caregiver emotion regulation skill, caregiver-child relationship quality, and neighborhood cohesion as protective factors. *Journal of Clinical Child and Adolescent Psychiatry, 33,* 477-487.

Kramer, L., & Kowal, A. K. (2005). Sibling relationship quality from birth to adolescence: The enduring contributions of friends. *Journal of Family Psychology, Special Issue: Sibling Relationship Contributions to Individual and Family Well-Being, 19*, 503-511.

La Greca, A., & Harrison, H. (2005). Adolescent peer relations, friendships, and romantic relationships: Do they predict social anxiety and depression? *Journal of Clinical Child and Adolescent Psychology, 34*, 49-61.

Laursen, B., Furman, W., & Mooney, K. S. (2006). Predicting interpersonal competence and self-worth from adolescent relationships and relationship networks: Variable-centered and person-centered perspectives. *Merrill-Palmer Quarterly, 52*, 572-600.

Levendosky, A. A., Leahy, K. L., Bogat, A., Davidson, W. S., & von Eye, A. (2006). Domestic violence, maternal parenting, maternal mental health, and infant externalizing behavior. *Journal of Family Psychology, 20*, 544-552.

Levesque, R. G. R. (1993). The romantic experience of adolescents in satisfying love relationships. *Journal of Youth and Adolescence, 22*, 219-251.

Lohman, B. J., & Billings, A. (2008). Protective and risk factors associated with adolescent boy's early sexual debut and risky sexual behaviors. *Journal of Youth and Adolescence, 37*, 723-735.

Malik, S., Sorenson, S. B., & Aneshensel, C. S. (1997). Community and dating violence among adolescents: Perpetration and victimization. *Journal of Adolescent Health, 21*(5), 291-302.

Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51*, 445-479.

Maas, C. J. M., & Hox, J. J. (2005). Sufficient sample sizes for multilevel modeling. *Methodology, 1*, 86-92.

Neeman, J., Hubbard, J., & Masten, A. (1995). The changing importance of romantic relationship involvement to competence from late childhood to late adolescence. *Development and Psychopathology, 7*, 727-750.

O'Donnell, L., Stueve, A., Myint-U, A., Duran, R., Agronick, G., & Wilson-Simmons, R. (2006). Middle school aggression and subsequent intimate partner physical violence. *Journal of Youth and Adolescence, 35,* 693-703.

Olinsky, A., Chen, S., & Harlow, L. (2003). The comparitive efficacy of imputation methods for missing data in structural equation modeling. *European Journal of Operational Research, 151,* 53-79.

Ozer, E. J., & Weinstein, R. S. (2004). Urban adolescents' exposure to community violence: The role of support, school safety, and social constraints in a school-based sample of boys and girls. *Journal of Clinical Child & Adolescent Psychology, 33,* 463-476.

Pike, A., Coldwell, J., & Dunn, J. (2005). Sibling relationships in early/middle childhood: Links with individual adjustment. *Journal of Family Psychology, Special Issue: Sibling Relationship Contributions to Individual and Family Well-Being, 19,* 523-532.

Quane, J. M., & Rankin, B. H. (2006). Does it pay to participate? Neighborhood-based organizations and the social development of urban adolescents. *Children and Youth Services Review, 28,* 1229-1250.

Rankin, B. H., & Quane, J. M. (2002). Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Social Problems, 49*(1), 79-100.

Sampson, R. J., Raudenbush, S., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277(5328),* 918-924.

Scharf, M., & Mayseless, O. (2001). The capacity for romantic intimacy: Exploring the contribution of best friend and marital and parental relationships. *Journal of Adolescence, 24,* 379-399.

Schnurr, M. P., & Lohman, B. J. (2008). How much does school matter? An examination of adolescent dating violence perpetration. *Journal of Youth and Adolescence, 37,* 266-283.

Schwab-Stone, M. E., Ayers, T. S., Kasprow, W., Voyce, C., Barone, C., et al. (1995). No safe haven: A study of violence exposure in an urban community. *Journal of the American Academy of Child & Adolescent Psychiatry, 10,* 1343-1352.

Seiffge-Krenke, I. (2003). Testing theories of romantic development from adolescence to young adulthood: Evidence of a developmental sequence. *International Journal of Behavioral Development, 27,* 519-531.

Seiffge-Krenke, I., Shulman, S., & Klessinger, N. (2001). Adolescent precursors of romantic relationships in young adulthood. *Journal of Social and Personal Relationships, 18,* 327-346.

Shaw, C. R., & McKay, H. D. (1942). *Juvenile delinquency and urban areas.* Chicago: University of Chicago Press.

Shulman, S., & Scharf, M. (2000). Adolescent romantic behaviors and perceptions: Age- and gender-related differences, and links with family and peer relationships. *Journal of Research on Adolescence, 10,* 99-118.

Shulman, S., & Seiffge-Krenke, I. (2001). Adolescent romance: Between experience and relationships. *Journal of Adolescence, 24,* 417-428.

Steinberg, L. (2008). *Adolescence*. (8th Edition). McGraw-Hill Publishing Company.

Steinberg, L., Mounts, N. S., Lamborn, S. D., & Dornbusch, S. M. (1991). Authoritative parenting and adolescent adjustment across varied ecological niches. *Journal of Research on Adolescence, 1,* 19-36.

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) Scales. *Journal of Marriage and the Family, 14,* 75-88.

Sullivan, H. S. (1953). *The interpersonal theory of psychiatry.* New York: Norton.

Turner, C. F., Forsyth, B. H., O'Reilly, J. M., Cooley, P. C., Smith, T. K., Rogers, S. M., & Miller, H. G. (1998). Automated self-interviewing and the survey measurement of sensitive behaviors. In M. P. Couper, R. P. Baker, J. Bethlehem, C. Z. F. Clark, J. Martin, W. L. Nicholls, II, & J. M. O'Reilly (Eds.), *Computer assisted survey information collection* (pp. 455-473). New York: Wiley.

Updegraff, K. A., McHale, S. M., Whiteman, S. D., Thayer, S. M., & Delgado, M. Y. (2005). Adolescent sibling relationships in Mexican American families: Exploring the role of familism. *Journal of Family Psychology, Special Issue: Sibling Relationship Contributions to Individual and Family Well-Being, 19,* 512-522.

U. S. Census Bureau (1997). *Glossary of decennial census terms and acronyms.* Retrieved on June 16, 2008 from http://www.census.gov/dmd/www/glossary.html#C.

U. S. Census Bureau (2000). *Decennial census, Summary File 1 & 3;* generated by Melissa P. Schnurr; (July 21, 2008) from http://www.factfinder.census.gov/servlet/DownloadDatasetServlet?_lang=en.

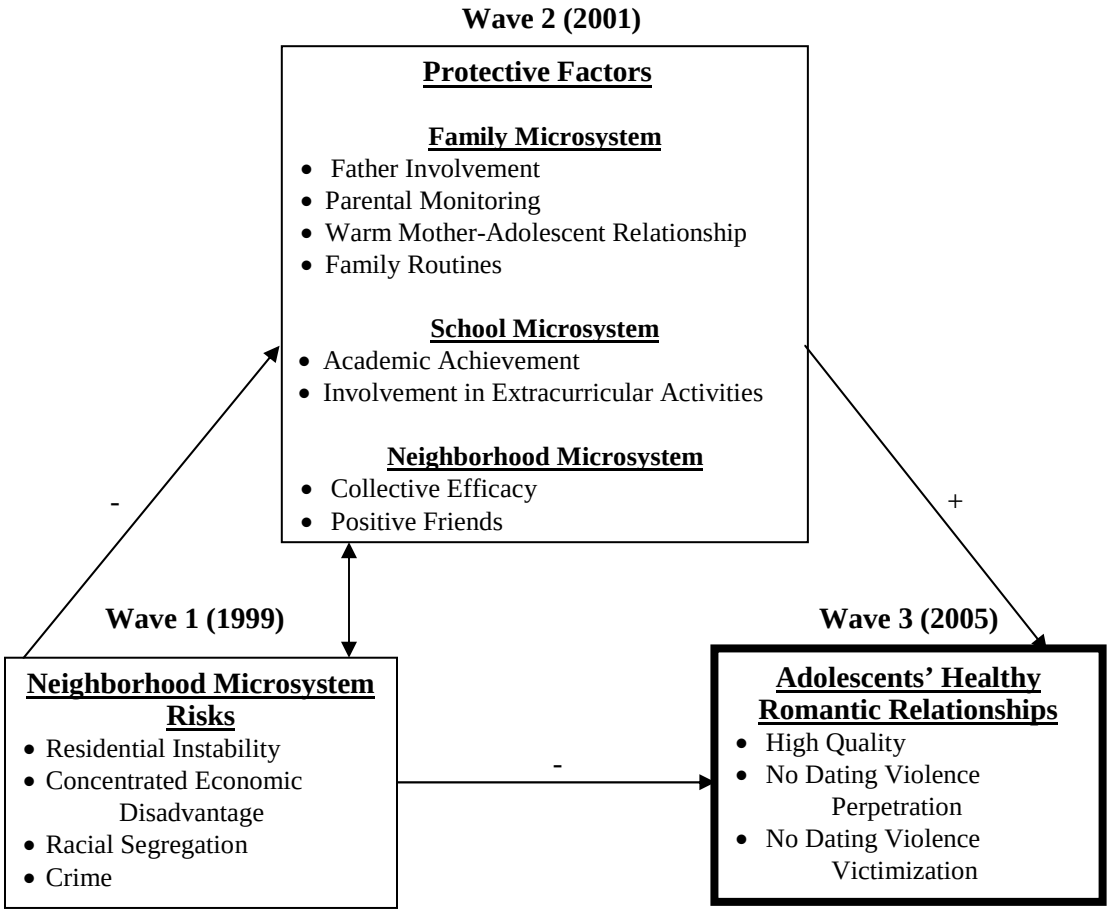
Veneziano, R. A. (2000). Perceived paternal and maternal acceptance and rural African-American and European-American youths' psychological adjustment. *Journal of Marriage and the Family, 62,* 123-132.

Videon, T. M. (2005). Parent-child relations and children's psychological well-being: Do dads matter? *Journal of Family Issues, 26,* 55-78.

Wickrama, K. A. S., & Bryant, C. M. (2003). Community context of social resources and adolescent mental health. *Journal of Marriage and Family, 65,* 850-866.

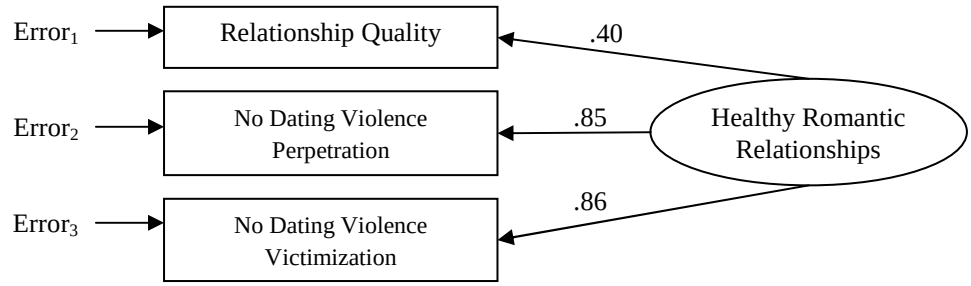
Winston, P., Angel, R., Burton, L., Chase-Lansdale, P., Cherlin, A., Moffitt, R., & Wilson, W. (1999). *Welfare, Children, and Families: A Three-City Study, Overview and Design Report.* Available at *http://web.jhu.edu/threecitystudy/images/overviewanddesign.pdf.*

Figure 1. Theoretical framework.



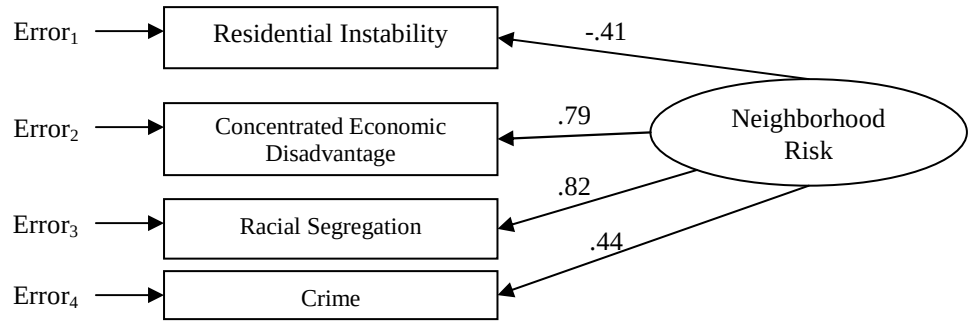
Notes: The bidirectional arrow between neighborhood microsystem risks and microsystem protective factors represents a mesosystem. The protective factors are shown mediating the relationship between early neighborhood risks and adolescents' healthy romantic relationships in late adolescence. Models also included adolescents' sex, Hispanic, white vs. black dummies, and mother's education dummy.

Figure 2. Confirmatory factor analysis model for healthy romantic relationships.



Notes: Component 1 Eigenvalue = 1.62, Percent of variance = 54.06

Figure 3. Confirmatory factor analysis model for neighborhood risk.



Notes: Component 1 Eigenvalue = 1.64, Percent of variance = 41.03; Component 2 Eigenvalue = 1.00, Percent of variance = 25.06.

Table 1. Sample description.

	Percentage	N
Sex		
Males	42.4	227
Females	57.6	308
Race		
Non-Hispanic black	43.6	233
Hispanic	46.7	250
Non-Hispanic white & other	9.7	52
Race-by-Sex		
Males		
Non-Hispanic black	18.9	101
Hispanic	19.3	103
Non-Hispanic white & other	4.3	23
Females		
Non-Hispanic black	24.7	132
Hispanic	27.5	147
Non-Hispanic white & other	5.3	29
Maternal Education, No High School Degree	43.9	235

Notes: Total sample = 535.

Table 2. Descriptive statistics for predictor variables & healthy romantic relationships.

	Mean	Standard Deviation	Range
Healthy Romantic Relationships, Wave 3			
Relationship Quality	3.51	0.53	1.00 – 4.00
No Dating Violence Perpetration	0.60	0.49	0 – 1.00
No Dating Violence Victimization	0.58	0.49	0 – 1.00
Family Protective Factors			
Father Involvement	-0.14	0.85	-1.25 – 1.55
Parental Monitoring	0.86	0.14	0.33 – 1.00
Warm Mother-Adolescent Relationship	3.85	0.74	1.00 – 5.00
Family Routines	2.67	0.68	1.00 – 4.00
School Protective Factors			
Academic Achievement	3.58	1.03	1.00 – 5.00
Involvement in Extracurricular Activities	2.61	1.81	0 – 7.00
Neighborhood Protective Factors			
Collective Efficacy	26.91	9.50	9.00 – 45.00
Positive Friends	3.30	1.94	0 – 6.00
Neighborhood Risk Factors			
Racial Segregation	0.65	0.25	0.03 – 0.99
Concentrated Economic Disadvantage	0.46	0.14	0.13 – 0.85
Residential Instability	0.43	0.08	0.18 – 0.74
Crime	7.29	2.68	2.00 – 12.00

Notes: $N = 535$

Table 3. Correlations among study constructs.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Relationship Quality	---														
2. No Dating Violence Perpetration	**.12**	---													
3. No Dating Violence Victimization	**.17**	**.55**	---												
4. Father Involvement	-.07	.04	.07	---											
5. Parental Monitoring	**.14**	**.15**	**.17**	.01	---										
6. Warm Mother Relationship	**.13**	**.19**	**.14**	.05	**.57**	---									
7. Family Routines	.02	**.11**	.01	.01	**.12**	**.11**	---								
8. Academic Achievement	.06	.01	.05	.03	**.16**	**.11**	**.17**	---							
9. Involvement Extracurricular Activities	**.09**	-.05	**-.09**	-.04	.04	.03	.02	**.22**	---						
10. Collective Efficacy	.01	-.02	-.06	.01	-.03	.08	**.14**	.04	-.04	---					
11. Positive Friends	.06	.05	.04	-.04	**.18**	**.17**	**.09**	.01	-.04	**.18**	---				
12. Racial Segregation	-.03	-.05	-.05	-.01	-.03	-.01	-.01	-.08	**.16**	**-.14**	**-.09**	---			
13. Economic Disadvantage	-.04	.01	.07	.01	.03	-.02	-.03	-.03	**.14**	**-.23**	**-.10**	**.47**	---		
14. Residential Instability	-.01	-.04	-.06	-.03	-.03	-.05	-.01	-.03	.02	-.04	-.01	**-.23**	-.03	---	
15. Crime	.01	.02	-.02	-.06	.02	-.02	.01	-.01	.07	**-.23**	-.02	**.11**	**-.22**	-.05	---

Notes. **Bolded** $p < .05$; $N = 535$

Table 4. Cross-tabulation of dating violence perpetration and victimization for males and females.

	Perpetration		**Total**
Victimization	Yes = 0	No = 1	
Males			
Yes = 0	52 (23%)	52 (23%)	104
No = 1	3 (1%)	120 (53%)	123
Females			
Yes = 0	98 (32%)	22 (7%)	120
No = 1	59 (19%)	129 (42%)	188
Total	212	323	535

Notes: Males $\chi^2 = 69.43$, $p < .001$; females $\chi^2 = 74.11$, $p < .001$.

Table 5. Hypothesis 2 SEM models predicting the latent construct late adolescents' healthy romantic relationships.

	Total Sample	Sex Comparisons		Race Comparisons	
Full Model	(N = 535)	Males (N = 227)	Females (N = 308)	Black Adolescents (N = 233)	Hispanic Adolescents (N = 250)
Female Adolescent	**-.05*** ** (.04)			**-.03*** ** (.06)	**-.25*** ** (.06)
Black [A]					
Hispanic	.01 (.05)	**.24*** (.07)	.08 (.04)		
White & Other	.00 (.07)	.07 (.10)	.18 (.08)		
Mom Education, No High School Degree	-.01 (.04)	.03 (.05)	.04 (.03)	-.01 (.06)	-.01 (.06)
Family Microsystem Protection, Wave 2					
Father Involvement	.00 (.02)	.01 (.04)	.01 (.02)	.01 (.04)	.02 (.03)
Parental Monitoring	.01 (.16)	.12 (.23)	.13 (.16)	-.01 (.26)	**.16** ** (.24)
Mother-Child Warmth	.01 (.03)	.03 (.05)	.09 (.03)	.01 (.05)	-.07 (.05)
Family Routines	.01 (.03)	.10 (.04)	.01 (.03)	**.01*** (.04)	-.05 (.05)
School Microsystem Protection, Wave 2					
Academic Achievement	.00 (.02)	.01 (.03)	.03 (.02)	.01 (.03)	.03 (.03)
Extracurricular Activities	-.00 (.01)	-.03 (.02)	.02 (.01)	.01 (.02)	-.02 (.02)
Neighborhood Protection, Wave 2					
Collective Efficacy	-.01 (.01)	**-.23*** (.01)	-.02 (.00)	-.01 (.01)	.01 (.01)
Positive Friends	.01 (.01)	.05 (.02)	-.03 (.01)	-.01 (.01)	.05 (.02)
Neighborhood Microsystem Risks					
Racial Segregation	-.01 (.10)	-.02 (.16)	.03 (.09)	-.01 (.21)	-.01 (.14)
Concentrated Economic Disadvantage	.00 (.01)	.10 (.02)	.07 (.01)	.01 (.02)	-.02 (.02)
Residential Instability	-.01 (.22)	-.13 (.32)	-.10 (.22)	-.01 (.36)	-.04 (.36)
Neighborhood Crime	.01 (.01)	-.14 (.01)	-.01 (.01)	.01 (.01)	-.03 (.01)
χ^2 (*df*)	62.50 (32)	34.40 (30)	38.20 (30)	44.60 (28)	39.30 (28)
CFI	0.97	0.99	0.99	0.96	0.96
RMSEA	0.04	0.03	0.03	0.05	0.04

Notes: Standardized coefficients are presented (Standard errors in parentheses) and were attained via a model with all direct pathways from each predictor listed above to the latent construct healthy romantic relationships; [A] Omitted group; ***$p < .001$; **$p < .01$; *$p < .05$.

Table 6. Hypothesis 2 SEM models predicting the latent construct late adolescents' healthy romantic relationships.

	Race by Sex Comparisons			
Full Model	Black Male Adolescents (N = 101)	Black Female Adolescents (N = 132)	Hispanic Male Adolescents (N = 103)	Hispanic Female Adolescents (N = 147)
Mom Education, No High School Degree	.05 (.09)	-.01 (.08)	.00 (.06)	-.10 (.06)
Family Microsystem Protection, Wave 2				
Father Involvement	-.01 (.05)	.01 (.05)	.02 (.04)	-.09 (.03)
Parental Monitoring	-.07 (.35)	-.01 (.38)	.01 (.27)	.21 (.25)
Mother-Child Warmth	.24 (.08)	.02 (.06)	-.01 (.06)	.17 (.05)
Family Routines	.15 (.06)	**.02*** (.06)	**.03*** (.06)	.02 (.05)
School Microsystem Protection, Wave 2				
Academic Achievement	-.03 (.04)	-.01 (.05)	-.01 (.03)	.03 (.03)
Extracurricular Activities	-.10 (.02)	.01 (.02)	.02 (.02)	.09 (.02)
Neighborhood Microsystem Protection, Wave 2				
Collective Efficacy	**-.31*** (.01)	.01 (.01)	.01 (.01)	-.04 (.00)
Positive Friends	.02 (.02)	-.01 (.02)	.01 (.02)	-.10 (.02)
Neighborhood Microsystem Risks				
Racial Segregation	-.03 (.40)	.00 (.25)	-.01 (.16)	.17 (.15)
Concentrated Economic Disadvantage	.22 (.03)	-.00 (.02)	-.02 (.03)	-.17 (.02)
Residential Instability	-.09 (.56)	.01 (.47)	.01 (.42)	-.13 (.38)
Neighborhood Crime	-.15 (.02)	.01 (.02)	-.01 (.01)	.05 (.01)
χ^2 (26)	22.71	26.30	17.10	33.30
CFI	1.00	1.00	1.00	0.96
RMSEA	0.00	0.01	0.00	0.04

Notes: Standardized coefficients are presented (Standard errors in parentheses) and were attained via a model with all direct pathways from each predictor listed above to the latent construct healthy romantic relationships; [A] Omitted group; ***$p < .001$; **$p < .01$; *$p < .05$.

CHAPTER IV: OVERALL SUMMARY

Given the staggering rates of dating violence among adolescents (Ely et al., 2002), as well as the fact that many adolescents do, indeed, develop healthy romantic relationships (Bouchey, 2007; Seiffge-Krenke, 2003), it is important to understand the precursors of each. Gaining a better understanding of the precursors to adolescents' dating violence perpetration and healthy romantic relationship development will inform education and prevention efforts. Informing such efforts is important because the skills that adolescents learn and use in their romantic relationships last into adulthood and across relationships (Steinberg, 2008).

Review of Results

The first article simultaneously examined adolescent, family, school, and neighborhood risk factors experienced in early adolescence that may increase adolescents' likelihood of perpetrating dating violence in late adolescence. Moreover, how perceived neighborhood collective efficacy may buffer the impact of these risk factors to reduce the likelihood of later dating violence perpetration in adolescents' romantic relationships was assessed. It was hypothesized that the early risk factors would be positively linked to later dating violence perpetration and that collective efficacy would buffer this negative relationship to reduce dating violence perpetration in late adolescence.

Results from the first article suggest that early adolescent characteristics and risks in their family and school environments increase dating violence perpetration, whereas collective efficacy buffers these relationships. Specifically, for the total sample, drug and alcohol use, low parental monitoring, academic difficulties, and involvement with antisocial peers were significant early risk factors for dating violence perpetration in late adolescence. Furthermore, males, females, and black males and females were more likely to perpetrate dating violence in late adolescence if they had prior involvement with antisocial peers. Second, for males, black males, and Hispanic females, early drug and alcohol use increased their dating violence perpetration in late adolescence. Third, low parental monitoring for females, depressive symptoms for males, externalizing behaviors for black females, and mother's experiences with domestic violence for Hispanic females were risk factors for dating violence perpetration. Finally, perceived neighborhood collective efficacy buffered the

relationship between early academic difficulties and later dating violence perpetration for Hispanic males.

The second article examined how family, school, and neighborhood factors during middle adolescence may serve as protective pathways to later healthy romantic relationships among a sample of low-income, minority adolescents using structural equation modeling (SEM). Specifically, the direct relationship between exposure to neighborhood risks during early adolescence and development of healthy romantic relationships in late adolescence was explored. In addition, the family, school, and neighborhood protective factors from middle adolescence were examined as mediators. It was hypothesized that neighborhood risks would be negatively associated with healthy romantic relationship development and the effect of early exposure to neighborhood risks would be transmitted through positive family, school, and neighborhood characteristics to result in healthy romantic relationships among late adolescents.

Findings from the second study show no direct link between neighborhood risk factors and adolescents' development of healthy romantic relationships, which precluded the testing of a mediation model; however, two significant family microsystem protective factors were found. In particular, even when neighborhood risk factors were considered, being monitored by parents and living in a structured home environment significantly contributed to adolescents' healthy development of romantic relationships. Unexpectedly, mothers' perceptions of neighborhood collective efficacy decreased males' and black males' development of healthy romantic relationships. This finding may be due to fact that the *Three-City Study* sample included only families that were 200% of the poverty line or below.

Education Implications

Results from the first study support the idea that prevention and intervention programs must include more than characteristics of adolescents and their romantic partners, but also risk factors in the family and school environment in dating violence prevention curricula. In particular, programs should focus on decreasing drug and alcohol use, depressive symptoms, and externalizing behaviors among adolescents, along with teaching them healthy relationship behaviors. Drawing from social learning theory (Bandura, 1977), reducing these

negative behaviors and increasing healthy behaviors in youth has an indirect effect on dating violence prevention by reducing the amount of negative behaviors that other teens model from their peers. This may be an effective strategy, in light of results showing that involvement with antisocial peers was a risk factor for perpetration of dating violence. In addition, parents should be involved in programs to emphasize the importance of monitoring their adolescent children as well as modeling healthy relationship behaviors. Furthermore, results from the second study also support the inclusion of parents in dating violence prevention and relationship education programs. Not only can parents be taught how to model appropriate relationship behavior (Bandura, 1977), but they must also be made aware of the importance of monitoring their teens as well as providing a structured home environment for healthy romantic relationship development.

Given the results of these two studies, the first step in dating violence prevention and romantic relationship education is to inform males and females on the types of dating violence that exist as well as healthy characteristics of relationships. Next, including parents in education programs will allow important family precursors to be discussed, such as monitoring, family routines, and domestic violence. Finally, educators should be sensitive to the differential effects of these risky and protective factors on romantic relationships in order to meet the specific needs of black males and females as well as Hispanic males and females. Indeed, the family, school, and positive neighborhood environments matter for these adolescents.

Future Research

In order to develop education programs that positively impact all adolescents, more longitudinal research must be conducted. Specifically, research is needed on samples of non-Hispanic white, non-Hispanic black, Asian, and Hispanic adolescents from all socioeconomic backgrounds as well as rural and urban areas; the growing population of Hispanic and Asian families in the United States also supports the need for research on this group of adolescents (U.S. Census Bureau, 2008). Moreover, there is a lack of research on adolescents' experiences with dating violence in same-sex relationships. Overall, researchers have just begun to understand the precursors to adolescents' dating violence perpetration and healthy

romantic relationship development for these diverse groups of adolescents. More research, in particular longitudinal research, must be conducted to better inform education efforts to equip all teens with the skills that are necessary to have healthy relationships throughout adulthood.

References

Bandura, A. (1977). *Social Learning Theory.* New York: General Learning Press.

Barry, C. M., & Wentzel, K. R. (2006). Friend influence on prosocial behavior: The role of motivational factors and friendship characteristics. *Developmental Psychology, 42*(1), 153-163.

Bartko, W. T., & Eccles, J. S. (2003). Adolescent participation in structured and unstructured activities: A person-oriented analysis. *Journal of Youth and Adolescence, 32,* 233-241.

Bergman, L. (1992). Dating violence among high school students. *Social Work, 37*(1), 21-27.

Bouchey, H. A. (2007). Perceived romantic competence, importance of romantic domains, and psychosocial adjustment. *Journal of Clinical Child and Adolescent Psychology, 36,* 503-514.

Brookmeyer, K. A., Henrich, C. C., & Schwab-Stone, M. (2005). Adolescents who witness community violence: Can parent support and prosocial cognitions protect them from committing violence? *Child Development, 76,* 917-929.

Cleveland, H. H., Herrera, V. M., & Stuewig, J. (2003). Abusive males and abused females in adolescent relationships: Risk factors similarity and dissimilarity and the role of relationship seriousness. *Journal of Family Violence, 18*(6), 325-339.

Connolly, J., Furman, W., & Konarski, R. (2000). The role of peers in the emergence of heterosexual romantic relationships in adolescence. *Child Development, 71,* 1395-1408.

Crosnoe, R., Erickson, K. G., & Dornbusch, S. M. (2002). Protective functions of family relationships and school factors on the deviant behavior of adolescent boys and girls: Reducing the impact of risky friendships. *Youth & Society, 33,* 515-544.

Ellickson, P. L., & McGuigan, K. A. (2000). Early predictors of adolescent violence. *American Journal of Public Health, 90*(4), 566-572.

Ely, G., Dulmus, C. N., & Wodarski, J. S. (2002). Adolescent dating violence. In L. A. Rapp-Paglicci, A. R. Roberts, & J. S. Wodarski (Eds.), *Handbook of violence* (pp. 33-53). New York: John Wiley & Sons.

Fredricks, J. A., & Eccles, J. S. (2005). Developmental benefits of extracurricular involvement: Do peer characteristics mediate the link between activities and youth outcomes? *Journal of Youth and Adolescence, 34,* 507-520.

Furman, W., Simon, V. A., Shaffer, L., & Bouchey, H. A. (2002). Adolescents' working models and styles for relationships with parents, friends, and romantic partners. *Child Development, 73,* 241-255.

Gorman-Smith, D., Henry, D. B., & Tolan, P. H. (2004). Exposure to community violence and violence perpetration: The protective effect of family functioning. *Journal of Clinical Child & Adolescent Psychology, 33,* 439-449.

Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development & Psychopathology, 10,* 101-116.

Hair, E. C., Moore, K. A., Garrett, S. B., Ling, T., & Cleveland, K. (2008). The continued importance of quality parent-adolescent relationships during late adolescence. *Journal of Research on Adolescence, 18,* 187-200.

Harris, M. H., Furstenberg, F. F., & Marmer, J. K. (1998). Parental involvement with adolescents in intact families: The influence of fathers over the life course. *Demography, 35,* 201-216.

Hart, J. L., O'Toole, S. K., Price-Sharps, J. L., & Shaffer, T. W. (2007). The risk and protective factors of violent juvenile offending: An examination of gender differences. *Youth Violence and Juvenile Justice, 5,* 367-384.

Hilton, N. Z., & Harris, G. T. (2005). Predicting wife assault: A critical review and implications for policy and practice. *Trauma, Violence, and Abuse, 6*(1), 3-23.

Kerr, M. H., Beck, K., Shattuck, T. D., Kattar, C., & Uriburu, D. (2003). Family involvement, problem and prosocial behavior outcomes of Latino youth. *American Journal of Health Behavior, 27,* S55-S65.

Kliewer, W., Cunningham, J. N., Diehl, R., Parrish, K. A., Walker, J. M., Atiyeh, C., Neace, B., Duncan, L. et al. (2004). Violence exposure and adjustment in inner-city youth: Child and caregiver emotion regulation skill, caregiver-child relationship quality, and neighborhood cohesion as protective factors. *Journal of Clinical Child and Adolescent Psychiatry, 33,* 477-487.

Kowaleski-Jones, L. (2000). Staying out of trouble: Community resources and problem behavior among high-risk adolescents. *Journal of Marriage and the Family, 62,* 449-464.

LaVoie, F., Hebert, M., Tremblay, R., Vitaro, F., Vezina, L., & McDuff, P. (2002). History of family dysfunction and perpetration of dating violence by adolescent boys: A longitudinal study. *Journal of Adolescent Health, 30,* 375-383.

LaVoie, G., Robitaille, L., & Hebert, M. (2000). Teen dating relationships and aggression: An exploratory study. *Violence Against Women, 6*(1), 6-36.

Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51,* 445-479.

Markowitz, F. E. (2001). Attitudes and family violence: Linking intergenerational and cultural theories. *Journal of Family Violence, 16*(2), 205-218.

McCloskey, L. A., & Lichter, E. L. (2003). The contribution of marital violence to adolescent aggression across different relationships. *Journal of Interpersonal Violence, 18,* 390-412.

O'Donnell, L., Stueve, A., Myint-U, A., Duran, R., Agronick, G., & Wilson-Simmons, R. (2006). Middle school aggression and subsequent intimate partner physical violence. *Journal of Youth and Adolescence, 35,* 693-703.

O'Keefe, M. (1994). Linking marital violence, mother-child/father-child aggression, and child behavior problems. *Journal of Family Violence, 9*(1), 63-78.

Quane, J. M., & Rankin, B. H. (2006). Does it pay to participate? Neighborhood-based organizations and the social development of urban adolescents. *Children and Youth Services Review, 28,* 1229-1250.

Rankin, B. H., & Quane, J. M. (2002). Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Social Problems, 49*(1), 79-100.

Rosenbaum, A., & Leisring, P. A. (2003). Beyond power and control: Towards an understanding of partner abusive men. *Journal of Comparative Family Studies, 34*(1), 7-22.

Schnurr, M. P., & Lohman, B. J. (2008). How much does school matter? An examination of adolescent dating violence perpetration. *Journal of Youth and Adolescence, 37,* 266-283.

Seiffge-Krenke, I. (2003). Testing theories of romantic development from adolescence to young adulthood: Evidence of a developmental sequence. *International Journal of Behavioral Development, 27,* 519-531.

Seiffge-Krenke, I., Shulman, S., & Klessinger, N. (2001). Adolescent precursors of romantic relationships in young adulthood. *Journal of Social and Personal Relationships, 18,* 327-346.

Shaw, C. R., & McKay, H. D. (1942). *Juvenile delinquency and urban areas.* Chicago: University of Chicago Press.

Shek, D. T. L., & Ma, H. K. (2001). Parent-adolescent conflict and adolescent antisocial and prosocial behavior: A longitudinal study in a Chine context. *Adolescence, 36*(143), 545-555.

Shulman, S., & Scharf, M. (2000). Adolescent romantic behaviors and perceptions: Age- and gender-related differences, and links with family and peer relationships. *Journal of Research on Adolescence, 10,* 99-118.

Steinberg, L. (2008). *Adolescence.* (8th Edition). McGraw-Hill Publishing Company.

Thomas, S. P., & Smith, H. (2004). School connectedness, anger behaviors, and relationships of violent and nonviolent American youth. *Perspectives in Psychiatric Care, 40*(4), 135-148.

U. S. Census Bureau. (2008). *An older and more diverse nation by mid-century: Press release.* Retrieved on February 16, 2009 from: http://www.census.gov/Press-Release/www/releases/archives/population/012496.html

Veneziano, R. A. (2000). Perceived paternal and maternal acceptance and rural African-American and European-American youths' psychological adjustment. *Journal of Marriage and the Family, 62,* 123-132.

Wolf, K. A., & Foshee, V. A. (2003). Family violence, anger expression styles, and adolescent dating violence. *Journal of Family Violence, 18*(6), 309-316.