

PEER AND NEIGHBORHOOD RISK CONTEXTS, AND
ADOLESCENTS' DELINQUENT BEHAVIORS: THE
PROTECTIVE POTENTIAL OF FAMILY AND
NEIGHBORHOOD CONNECTEDNESS

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PEER AND NEIGHBORHOOD RISK CONTEXTS, AND ADOLESCENTS'
DELINQUENT BEHAVIORS: THE PROTECTIVE POTENTIAL OF FAMILY AND
NEIGHBORHOOD CONNECTEDNESS

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Abstract

This study examined adolescents' perceptions of contextual risks (neighborhood risk or peer delinquent behavior) and connectedness (neighborhood cohesion, family cohesion, mothers' support, and fathers' support) in association with their own reports of delinquent behavior (DB) in a predominately Latino and African American sample of 9th and 10th grade students. Hierarchical multiple regression analyses were used to separately examine--for neighborhood risk and peer DB--a theoretical model which posited that (a) risks would be positively associated, while aspects of connectedness would be negatively associated to adolescents' reports of DB and (b) aspects of connectedness would moderate the association between the risk and adolescents' DB. Slope analysis was used to determine significance of moderating associations. Data were collected from 688 adolescents (mean age of 14.9; 23.5% African American, 53.1% Latino, 14.2% Caucasian) in three states. In both the neighborhood risk and peer DB models, risk was positively associated, while aspects of connectedness were negatively associated with adolescent DB. In the neighborhood risk model, mothers' support moderated the deleterious association with DB, particularly for boys. For youth reporting high family cohesion, fathers' support afforded protection against DB. In the peer DB model, boys were at greater risk for DB when reporting high peer DB. The positive association of peer DB and adolescent DB was moderated by fathers' support x gender, showing the greatest protective potential for boys. In sum, connectedness at the parental and family levels buffers the risks of peer DB and neighborhood risk for adolescents' DB.

MANUSCRIPT

PEER AND NEIGHBORHOOD RISK CONTEXTS, AND ADOLESCENTS' DELINQUENT BEHAVIORS: THE PROTECTIVE POTENTIAL OF FAMILY AND NEIGHBORHOOD CONNECTEDNESS

Introduction

Many parents hope that their children make it through the transitions from childhood to adolescence to adulthood relatively unscathed by problems such as risky neighborhoods, delinquent peers and any participation in delinquent behaviors themselves. While delinquent behavior occurs across racial/ethnic groups, juvenile arrests show disproportionate rates among youth in ethnic minority groups, research on adolescent delinquent behavior is needed that includes Latinos and African American youth (Goodkind, Wallace, Shook, Bachman, & O'Malley, 2009; Puzzanchera & Adams, 2010), the two largest ethnic minority groups in the United States (U.S. Census Bureau, 2009). For example, in 2007, the juvenile arrest rate for all ethnic minorities was 1.7 times that of European Americans and for African Americans, specifically, 2.1 times that of European Americans (Puzzanchera & Adams, 2010). Further, changing demographic patterns in the United States require the inclusion of Latino populations in the

investigation of adolescents' delinquent behavior (Holmes, Jones-Sanpei, & Day, 2009), because ethnic minority group membership may lead to more stressful circumstances (e.g., greater neighborhood risk) than those experienced by the ethnic majority group (Peters & Massey, 1983).

As the prominence of relationships outside of the family (e.g., peers, neighbors) increase during adolescence (Carter & McGoldrick, 2004), both families and neighborhood contexts hold potential to protect youth against the risk for delinquent behavior (Kirby & Fraser, 1997). Previous research clearly shows the potential of connectedness within one or more parts of the context to protect youth against risk (Werner & Silbereisen, 2003). Based on these ideas, using a sample overrepresented by Latino and African American youth, this study investigated (a) how adolescents' perceptions of contextual risks (neighborhood or peer) and contextual connectedness (neighborhoods, family systems, or parents) related to adolescents' reports of delinquent behavior, and (b) whether adolescents' perceptions of connectedness in neighborhoods, family systems, father-adolescent subsystems, or mother-adolescent subsystems moderated (e.g. altered the strength of the association between the predictor and criterion variable: Baron & Kenny, 1986) the association of contextual risks and adolescents' reports of delinquent behaviors.

Adolescents' Delinquent Behavior

Most definitions of adolescents' delinquent behavior include both criminal behaviors (Farrington, 2009) and status offense behaviors that are illegal for youth (e.g., school truancy, running away) but not for adults (Flannery, Hussey, Biebelhausen, & Wester, 2003). In addition, some definitions include precursors to illegal activity as the

violation of social norms (Stattin & Kerr, 2000). Delinquent behavior may or may not bring youth into contact with the legal system, depending upon whether youth interact with legal authorities based upon their externalizing behaviors (Farrington, 2009; Loeber, Burke, & Pardini, 2009a; Thornberry & Krohn, 1997). In the present study, *adolescent delinquent behaviors* are defined as encompassing adolescents' perceptions of externalizing behaviors that violate criminal law, status offenses, and precursors to illegal behaviors.

Adolescents' delinquent behavior has received extensive attention from researchers across varying fields (Farrington, 2009; Lipsey & Derzon, 1998), in part, because juvenile offenses are significant predictors of adult offenses (Bean, Barber, & Crane, 2006). Adolescents' delinquent behavior may co-occur with antisocial behavior, conduct disorder and other forms of aggression thereby increasing the complexity of the problem (Farrington, 2009). Delinquent behaviors may also strain families and society through increased emotional, relational, and financial stress as families seek to address or manage adolescents' behaviors (Farrington, 2009; Loeber et al., 2009a).

Systems Perspectives on Adolescents' Delinquent Behavior

Systems perspectives provide for the consideration of contextual risks and protective processes that include neighborhood, peer, individual, family system and dyadic subsystem level characteristics. For this study, *protective processes* are defined as environments, qualities, or relationships which increase the probability of positive outcomes or moderate the association between risk contexts for individuals and groups (Kirby & Fraser, 1997; Masten, Cutuli, Herbers, & Reed, 2009; Rutter, 1987; Walsh, 2006). Mother-adolescent and father-adolescent subsystems within greater systems can

provide important connections for adolescents to their respective family systems (Minuchin, 1969; Nichols, 2010). Despite considerable research in adolescent delinquent behavior, additional research is needed to tease out the associations that exist among protective process and risk environments (Farrington, 2009). A useful paradigm for understanding adolescents' delinquent behaviors is to consider the systemic contexts in which those behaviors exist and occur (Bronfenbrenner, 2005). These contexts, or system level characteristics that promote adolescent delinquent behavior include delinquent peers or living in risky neighborhoods. Yet, contexts within adolescents' lives hold potential to protect youth against delinquent behavior, either directly or by moderating the associations between risks and delinquent behavior.

Contextual Risks for Adolescents' Delinquent Behavior

Two of the dominant contextual risks for adolescent delinquent behavior are neighborhood risk (Ingoldsby et al., 2006; Leventhal & Brooks-Gunn, 2000; Loeber et al., 2005) and peer delinquent behavior (Elliott & Menard, 1996; Stattin & Kerr, 2009). A prominent conceptualization of examining neighborhood risk emphasizes the structural adversity in neighborhoods (Leventhal, Dupéré, & Brooks-Gunn, 2009; Schonberg & Shaw, 2007) such as lower socioeconomic levels (Gephart, 1997; Loeber et al., 2005), ethnic heterogeneity, and residential mobility (Beyers, Bates, Pettit, & Dodge, 2003; Leventhal & Brooks-Gunn, 2000; Sampson, Raudenbush, & Earls, 1997; Stattin & Kerr, 2009). More recently, other scholars argued that adolescents respond to their subjective perceptions of neighborhoods since youth respond to the "reality" they perceive in their neighborhoods (Henry, Merten, Plunkett, & Sands, 2008; O'Neil, Parke, & McDowell, 2001; Plunkett, Abarca-Mortensen, Behnke, & Sands, 2007). This approach is further

supported by research showing that adolescents' perceptions rather than mothers' perceptions, of neighborhood risk were significantly associated with delinquent behavior (Byrnes, Chen, Miller, & Maguin, 2007). A focus on adolescents' perceptions is also advocated, particularly in research involving diverse samples, by findings that Latino adolescents' reports and structural measures of neighborhood risk show a significant positive association (Plunkett, Henry, Robinson, Behnke, & Falcon, 2007).

The transition into adolescence is characterized by changes in the sense of self and relationships to others including an increased role of peers in socializing youth combined with greater permeability in family boundaries (Carter & McGoldrick, 2004). In turn, adolescents' vulnerability to delinquent behaviors is heightened when peers engage in such behaviors (Dishion & Andrews, 1995; Loeber, Burke, & Pardini, 2009b). Longitudinal data shows an increased risk for delinquent behavior as children move from association with non-delinquent peers to peers with increasing levels of delinquency, and subsequently engage in delinquent offenses (Elliott & Menard, 1996; Loeber, DeLamatre, Keenan, & Zhang, 1998). The association with delinquent peers heightens risk for adolescents to move into increased frequency and severity of offenses (Simons, Wu, Conger, & Lorenz, 1996).

The Protective Potential of Connectedness

Family systems perspectives emphasize the role of family relationships in promoting adaptation in individual family members as well as overall family systems (Hawley & DeHaan, 1996). By focusing upon contextual strengths such as connectedness within neighborhoods or families, adolescents may gain protection against contextual risks (Hawley & DeHaan, 1996; Walsh, 2006). Families and the broader system have the

potential to protect against risk, in part, by providing a sense of connectedness through support and cohesion (Barber & Schluterman, 2008; Barber, Stolz, & Olsen, 2005; Walsh, 2006). Consideration of multiple contexts allows researchers to move beyond the individual and developmental domains towards systemic contexts (Masten, 2007). However, attention to family systems (Henry, 1994; Henry, Robinson, Neal, & Huey, 2006; Henry, Sager, & Plunkett, 1996) as well as the overall neighborhood connectedness (Leventhal & Brooks-Gunn, 2000; Sampson et al., 1997) holds promise in providing understanding of the protective potential of connectedness in neighborhoods, overall family systems and adolescent-parent dyads.

Recent scholarship has identified three approaches for examining protective processes (Connell, Dishion, & Deater-Deckard, 2006; Loeber et al., 1998). The main effects approach considers the direct association between protective processes and outcome variables. The variable-centered approach examines how the predictor and criterion variables are associated when considering two-way and three-way interactions with protective processes as moderators, while the person-centered approach examines whether resilient adolescents (those who experience adversity yet do not demonstrate negative outcomes) report significantly higher levels of protective processes than non-resilient adolescents (Connell et al., 2006; Costello, Swendsen, Rose, & Dierker, 2008; Laird, Criss, Pettit, Dodge, & Bates, 2008). The present study utilizes a combination of the main effects and variable-centered approaches to elucidate how contextual connectedness may buffer contextual risks.

Neighborhood Cohesion

Neighborhood cohesion (i.e., bonding, support or caring about neighborhood) is a contextual connectedness that holds potential to protect youth against delinquent behavior. Sampson et al. (1997) reported that perceived neighborhood collective efficacy (connectedness) was negatively associated with violent crime rate in a racially diverse, large scale study of Chicago neighborhoods. In a longitudinal study in Britain, neighborhood cohesion has been negatively associated with perceptions of disorder (vagrancy, litter, vandalism) and overall crime rate (Markowitz, Bellair, Liska, & Jianhong, 2001), however neither of these studies specifically reference adolescents' delinquent behavior. However, looking specifically at African American and Latino boys and their adult caregivers in a poor urban community, Tolan, Gorman-Smith and Henry (2003) highlight the role of “neighborliness” (the extent to which people see themselves as able to depend on their community) in indirectly compensating for some of the risk of gang membership and violent behavior associated with low-income, high crime neighborhoods in a longitudinal study of 5th to 7th grade inner city boys followed for six years.

Family Cohesion

One important aspect of family connectedness is family cohesion, or the relationship dynamics within overall family systems involving emotional bonds of family members with each other combined with the helpfulness of family members in providing assistance to each other (Moos & Moos, 1994). Overall family cohesion fosters aspects of adolescents' well-being (Farrell, Barnes, & Banerjee, 1995; Moos, 1990) by providing a stable support network (Gorman-Smith, Henry, & Tolan, 2004). Cashwell and Vacc

(1996), in a small sample of adolescents between the ages of 12 and 16, found that family cohesion was indirectly associated with adolescent delinquency through deviant peer involvement. In a small study in Israel of nuclear families and their children aged 10-17, Yahav (2002) found that family cohesion was negatively associated with externalizing symptoms such as delinquency and aggression. Although limited research does demonstrate the potential of cohesion within overall family systems in protecting youth against externalizing behaviors including delinquent behaviors, research often neglects family cohesion in favor of focusing upon parent-adolescent dyadic qualities. In contrast, the present study examined connectedness within overall family systems as well as connectedness within parent-adolescent dyads.

Parental Support

In the study of how fathers' and mothers' behaviors protect against the risk for adolescents' delinquent behavior, previous research is limited by a disproportionate emphasis upon parental knowledge or monitoring within mother-adolescent dyads. In reviews of adolescent delinquency the importance of parental monitoring is well established as a salient parental behavior that protects against adolescents' delinquency (Barber et al., 2005; Farrington, 2009). Yet, Stattin and Kerr (2000) emphasize how monitoring requires parental knowledge of their child's activities, friends, and behaviors which emerges through children's disclosures that occur within a context where youth perceive a strong sense of connectedness to their parents. Thus, understanding how adolescents' perceptions of connectedness to their fathers and mothers associates with adolescents' delinquent behavior merits further examination. A prominent form of parent-adolescent connectedness consistently associated with adolescents' well being is *parental*

support, or warmth, acceptance, approval, and availability to their young (Peterson & Rollins, 1987). In a longitudinal study of 7th and 8th graders, Rueger, Malecki, and Demaray (2010) found that perceptions of parental support were negatively associated with adolescents' reports of depression and positively associated with self-esteem. Dumont and Provost (1999), in a small study of 8th grade and 11th grade French adolescents, found that vulnerable adolescents were more likely to engage in delinquent behaviors. A large, national study of 10th graders found that parental support was negatively associated with delinquent behaviors (Parker & Benson, 2004).

Examination of both mothers' and fathers' support is important as mothers' and fathers each have unique relationships with their adolescents (Day et al., 2005; Lamb & Tamis-LeMonda, 2004; Sarkadi, Kristiansson, Oberklaid, & Bremberg, 2008). Because much of the research on parental support has focused on mothers, there is less understanding of the associations between fathers' support and adolescents' well-being (Day et al., 2005; Hofferth et al., 2007; Lamb & Tamis-LeMonda, 2004). Using an African American adolescent sample of 5th, 8th, and 10th graders, fathers' rather than mothers' support was directly associated with delinquent behavior for adolescent boys and girls (Bean et al., 2006). Both fathers and mothers have unique and complex roles in the family. While fathers do spend proportionally less time than mothers with their children, the relative influences of mothers are shaped by that constancy and by the relative novelty for fathers (Lamb & Tamis-LeMonda, 2004). Based on these findings and the recommendations for more research into African American (Roopnarine, 2004) and Latino (Cabrera & Coll, 2004) fathers, specific investigation into the distinctions

between mothers' and fathers' support, especially in African American and Latino families, could produce valuable understanding (Bean et al., 2006).

Aspects of Connectedness as Moderators

Adolescents who perceive aspects of connectedness within their neighborhoods or families may gain protection against the heightened risk of delinquent behavior associated with contextual risks. That is, connectedness may moderate the association of contextual risk and adolescents' delinquent behavior. For example, while collective efficacy--a form of neighborhood cohesion--appears to afford protection against adult criminal activity for adults who experience neighborhood disadvantage (Sampson et al., 1997), it is possible that neighborhood cohesion may moderate the association of contextual risk to adolescents' delinquent behavior. Although Werner and Silbereisen (2003) found that the association between family cohesion and German adolescents' delinquent behavior was mediated by peer delinquency, the moderating potential of family cohesion has not received sufficient consideration. Systems perspectives provide theoretical support for the idea that adolescents who perceive a strong sense of connectedness with their overall family system through cohesion might be afforded protection against the increased risk of delinquent behavior associated with neighborhood risk and peer delinquent behavior. Studies investigating parental support as a moderator between contextual risk and adolescents' delinquent behavior are scarce.

Demographic Considerations

Overt conduct problems are usually less frequent (Crick & Grotpeter, 1995) and develop later (Silverthorn & Frick, 1999) for girls than for boys. Further, adolescent boys enter the juvenile justice system at two to four times the rate of adolescent girls and

report higher rates of delinquent behaviors (Farrington, 2009). However, scholars warn against concluding that boys are at greater risk for delinquent behavior than girls because the overall scholarship on gender differences in adolescents is replete with ambiguous findings (Hartman, Turner, Daigle, Exum, & Cullen, 2009). While such differences may be attributed to methodological differences such as strategies of sampling, measurement, or analysis (Hartman et al., 2009) adolescents' gender merits inclusion in research examining contextual risks and connectedness in association with delinquent behavior.

Another possibility is that adolescents' gender moderates the association of (a) contextual risk and delinquent behavior, (b) aspects of connectedness and delinquent behavior, and (c) the interaction of contextual risk and aspects of connectedness. While many large scale longitudinal studies have found gender differences in levels of exposure to risks and subsequent differences in adolescents' reports of delinquent behaviors, researchers have noted little support for gender differences in the strength of associations between protective and risk factors and delinquency (Fagan, Van Horn, Hawkins, & Arthur, 2007; Moffitt, Caspi, Rutter, & Silva, 2001). The possibility of moderation is supported by Werner and Silbereisen's (2003) finding that for girls, but not boys, family cohesion and closeness to fathers was associated with peer delinquency.

In addition to gender, low socioeconomic status (SES) conditions are a generally accepted risk factor for negative adolescent outcomes (Braveman et al., 2005; Brooks-Gunn, Linver, & Fauth, 2005; Mayer & Jencks, 1989; Schonberg & Shaw, 2007). However, evidence does not clearly support SES as a sole predictor of adolescents' delinquent behavior (Dodge & Pettit, 1994; Farrington, 2009; Tolan, 1988). Since this

study purposefully sampled from youth at greater risk for economic disadvantage SES is included as a control variable rather than a primary focus in this study.

Theoretical Model and Hypotheses

Based on the previous research and theoretical perspectives presented earlier, a model of how adolescents' perceptions of risk contexts and protective processes associate with adolescents' delinquent behavior was created in order to test both direct and moderating associations between the variables (see Figure 1). Specific hypotheses were: (a) contexts of risk (neighborhood risk, peer delinquency) will be positively associated with delinquent behaviors, (b) connectedness (neighborhood cohesion, family cohesion, mothers' support, and fathers' support) will be negatively associated with delinquent behavior, and (c) connectedness (neighborhood cohesion, family cohesion, mothers' support and fathers' support) will moderate the association between contexts of risk (peer delinquency and neighborhood risk) and adolescents' delinquent behavior. Adolescents' gender was examined as a possible predictor of adolescents' delinquent behavior and as a moderator of the associations between the risk and connectedness variables and delinquent behavior.

Method

Procedure

This study is part of a larger project funded by the Office of Juvenile Justice and Delinquency Prevention (OJJDP) examining neighborhood and family contexts and adolescents' delinquent behavior, involving data collection in three states. Data were collected using a self-report questionnaire of selected demographic variables along with other variables assessing individual, family and community. The research project targeted

schools and other community organizations in areas with large Latino and African American populations. The research teams made contacts with identified high schools and community organizations, obtained agreements to participate from associated officials, and arranged for distributing packets and collecting data either at the school/organization or by sending a questionnaire home with the adolescents.

In California, data were collected in 9th grade classes at two separate high schools in Los Angeles. Researchers sent packets (i.e., parental consent, father survey, and father consent) home with the students. The students were directed to return signed parental consent forms back to the teachers. The researchers returned 1-2 weeks later (depending on the school), collected the consent forms, and then distributed adolescent assent forms and surveys to students who wished to participate and had signed consent forms. Students who did not participate were given an alternative assignment while data collection was taking place. Collection occurred during a regular class designated by the school. Researchers (mostly bilingual) walked around the class to assist students if they had questions. Students were entered into a drawing for one \$10 gift card for each class where data collection took place.

For the North Carolina collection, 9th and 10th graders at three different schools were invited to participate in the study by the research team during a homeroom or other designated class. Adolescents were given a packet with consent forms and the survey to take home. Adolescents were instructed to take the packet home, have their parent or guardian sign the consent. Then, they could complete the survey and return it to the designated official at their school. Teachers were provided with an instruction packet and

distributed nominal amount gift cards when the students returned the surveys and consent forms.

In Oklahoma, collection occurred at three different schools. At two of the schools, 9th and 10th grade students were given packets containing consent forms with instructions to return the signed parental consent forms and adolescent assent forms to the homeroom teachers. The research team returned one week later and administered the survey in a group location with those adolescents who returned consent and assent forms. The third school provided a large room during two separate enrollment days. Parents completed consent forms and participants completed the survey at that time. An additional collection was held at a religious organization. A researcher distributed a packet with parental consent and adolescent assent forms. The researcher returned a week later and administered the survey to those who had returned the consent and assent forms.

Participation was voluntary, and adolescents who chose not to participate were provided with other appropriate activities. The entire survey contained five pages and took most adolescents approximately 50 minutes to complete. Eligible adolescents were placed in a drawing to win a \$10 gift card. Chances of winning were 1 in 20.

Participants

A purposive sampling procedure was utilized for this study in order to specifically oversample African American and Latino populations and to target the desired population of 9th and 10th grade students. Among the 688 adolescent participants, 46.2% were boys and 53.8% were girls. The mean age was 14.9 years, with ages ranging from 13 to 18. The grade distribution was 68.9% in the 9th grade and 31.1% in the 10th grade. Participants reported their race/ethnicity as follows: Hispanic/Latino (53.4%), African

American/Black (23.7%), European American (14.3%), Mixed Descent (5.6%), Native American (.9%), and Asian (2%). Participants reported a mean of educational level of 5.30 for mothers and 5.17 for fathers indicating that most parents had a high school education. Participants reported a mean of 3.89 for neighborhood wealth indicating that the sample was primarily from a lower middle class population. The results of one way analyses of variance (ANOVAs) indicated no differences between those participants selected out due to missing data and the current sample. However, California was significantly lower on SES and higher on neighborhood risk for the current sample.

Measures

Socioeconomic status and general demographics. For the purposes of this study, the socioeconomic status variable was comprised of a 3 item combined scale including questions about the educational achievement for mother and father—similar to the conceptualization advocated by Hollingshead (1975)—and the adolescents’ perceptions of neighborhood wealth. Response choices for educational achievement follow: 1 = *no schooling completed*, 2 = *some elementary school (1st – 5th grades)*, 3 = *some middle school (6th – 8th grades)*, 4 = *some high school (9th – 12th grades)*, 5 = *high school graduate or equivalency (GED)*, 6 = *some college but no degree*, 7 = *associate (technical school) degree*, 8 = *bachelor’s degree*, 9 = *master’s degree*, 10 = *professional school (medical, law) degree*, 11 = *doctorate degree (Ph.D., Ed.D.)*. Response choices for the neighborhood wealth question follow: 1 = *very poor*, 2 = *poor*, 3 = *lower middle-class*, 4 = *middle-class*, 5 = *upper middle-class*, 6 = *upper-class/rich*. The items were standardized and then combined. Cronbach’s alpha for the combined SES scale was .68. Other demographic questions included gender, age, race/ethnicity, and grade in school.

Adolescents' delinquent behaviors. A 17-item Likert-type scale, created for this study by the principal investigators using conceptualizations of delinquent behavior consistent with Farrington (2009) and Loeber et al., (2009a), was used to measure adolescents' perceptions of delinquent behaviors. Items included questions about how often adolescents engaged in delinquent behaviors, such as truancy, illegal/unethical behaviors, gang involvement, selling drugs, stealing, carrying weapons, and involvement with police or being arrested. Response choices follow: 0 = *never*, 1 = *once*, 2 = *a few times*, and 3 = *many times*. Mean scores were computed. Higher scores indicate that the adolescents report greater involvement in risky behaviors. Using a sample of 358 Latino adolescents from California and North Carolina, the Cronbach's alpha for the scale was .92 (Pacheco-Santivanez, Carrasco, Plunkett, & Behnke, 2010). Also, the scale showed good validity as it was highly correlated with adolescent substance use, friends' delinquent behaviors, and neighborhood risks ($p < .001$). A Cronbach's alpha of .90 was established using the current data.

Neighborhood risk. Adolescents' perceptions of neighborhood risk was measured with a modified scale (Bamaca, Umana-Taylor, Shin, & Alfaro, 2005; Supple, Ghazarian, Frabutt, Plunkett, & Sands, 2006) containing 12 Likert-type items. Two items were added and the wording on a few items was improved for this present study. Assessed risks included (but were not limited to) poverty, unemployment, crime, violence, drug/alcohol use, and little value placed on education. A sample item follows: "In my neighborhood, I have seen people do illegal things." Response choices follow: 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly agree*. Mean scores were computed. Higher scores indicate a greater amount of perceived neighborhood risk.

Previous studies using adolescents' reports with the 10-item scale (Bamaca et al., 2005; Henry et al., 2008; Supple et al., 2006) found Cronbach's alphas ranging from .84 to .86. Using current data, the Cronbach's alpha was .91.

Peers' delinquent behaviors. Adolescents' perceptions of peers' delinquent behaviors were evaluated with a 7-item Likert-type scale consisting of questions reflecting the adolescents' friends' delinquent behaviors (e.g., threats of violence, gang involvement, substance use and truancy) within the past six months. The scale was adapted from a similar scale created by the Center for Urban Affairs and Policy Research (1995). Responses were elicited on the following scale: 0 = *never*, 1 = *sometimes*, 2 = *frequently*, 3 = *very frequently*, 4 = *always*. Mean scores were computed for this variable with higher scores indicating greater amounts of peer delinquent behavior perceived by adolescents. The present study found a Cronbach's alpha of .91 for peers' delinquent behaviors.

Neighborhood social cohesion. A 3-item Likert-type scale, similar in conceptualization to a scale utilized by Abada, Hou and Ram (Abada, Hou, & Ram, 2007) and modified for this study by the principal investigators to focus on knowing and being concerned about neighbors, measured adolescents' perceptions of neighborhood social cohesion. The three items asked adolescents whether people in their neighborhood know each other, care about the community, and get along well. A sample item was: "Most people care about their community." Response choices follow: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Mean scores were computed for this variable. Higher scores on this scale indicate greater perceived neighborhood social cohesion. Plunkett (2010) obtained reliability in a adolescent sample ($n = 346$) for this 3-

item measure of .72. Validity was determined by correlation with neighborhood risks ($r = -.39, p < .001$), hostility ($r = -.20, p < .001$), violent intentions ($r = -.13, p < .01$), and likelihood of violence and delinquency ($r = -.11, p < .05$; Plunkett, 2010). The current study obtained a Cronbach's alpha of .75 for neighborhood social cohesion.

Family cohesion. Adolescents' perceptions of family cohesion was measured with the 9-item cohesion subscale of the Family Environment Scale (Moos & Moos, 1994). Sample items were worded in positive and negative formats. Examples include: (a) "Family members really help and support each other" and (b) "There is very little group spirit in our family" (reverse coded). Responses were provided on the following Likert-type scale: 1 = *not true*, 2 = *generally not true*, 3 = *generally true* and 4 = *true*. Moos and Moos (1994) reported Cronbach's alphas ranging from .72 to .86. Higher scores on this subscale indicate greater perceived cohesion. This current data had a Cronbach's alpha of .80 for family cohesion.

Parental support. The 4-item support subscale from the Parent Behavior Measure (Caldwell, Beutler, Anross, & Claytonsilver, 2006; Henry & Peterson, 1995; Henry, Wilson, & Peterson, 1989; Peterson, Rollins, & Thomas, 1985) was used to measure adolescents' perceptions of the parental behavior of support. The items assess the extent to which adolescents perceive that their mothers and/or fathers love and approve of them, as well as whether their parents are available. The scale items were selected based on previous studies identifying the highest loading on the factor identified as support (Peterson et al., 1985). Scale items came from a factor analytic study examining the Heilbrun (1964, 1973) and Cornell measures (Bronfenbrenner, 1961; Devereux, Bronfenbrenner, & Rodgers, 1969) of parental support (Ellis, Thomas, &

Rollins, 1976). The scale items selected for the parental support measure were part of the Rollins and Thomas Parent Behavior Inventory, an 80-item measure which consisted of salient items from Schaefer's Parent Behavior Inventory (Peterson et al., 1985; Schaefer, 1959, 1965).

Adolescents' responded to each item providing perceptions of the parental behaviors of support for their primary mother and father figures. Responses were provided on a 4-point Likert-type scale: 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly agree*. Mean scores were computed for the adolescents' responses for mother and father figure separately. Cronbach's alphas for immigrant Latino families (Bamaca et al., 2005) and Mexican American families (Plunkett, Behnke, Sands, & Choi, 2008) ranged from .78 to .90. Henry et al. (2008) found alphas of .82 for mothers' support and .86 for fathers' support with a Latino sample from immigrant families. The current study found alphas of .82 for mothers' support and .84 for fathers' support.

Overview of the Analyses

Means and standard deviations (see Table 1), along with skewness and kurtosis were examined. While some skew can be expected in variables of a psychological nature (Micceri, 1989), the self-reported adolescent delinquent behavior measure was highly skewed (skew > 3.0). To reduce the influence of extreme outliers, the square root transformation (Cohen, Cohen, West, & Aiken, 2003) was used and the transformed variable of adolescent delinquent behavior was used in all subsequent analyses (see Table 1 for original means and transformed criterion means). Gender was dummy coded (1 = *girls* and 0 = *boys*) to allow for inclusion in the multiple regression equations.

Before performing the hierarchical linear multiple regression, bivariate correlations were obtained to examine the associations among the predictor and criterion variables. All other predictor and moderator variables, with the exception of the dichotomous variable of gender, were centered by subtracting the mean from each participants' score on the variables (Cohen et al., 2003). Interaction terms were created for all possible two and three-way interactions terms involving adolescents' gender, adolescent risks, and forms of connectedness to be entered into the hierarchical multiple regression analyses to test for moderators. As a specific example, a two-way interaction for peer delinquency by fathers' support (PD x FS) and a three-way interaction for gender by peer delinquency by fathers' support (Gender x PD x FS) were created.

To better ascertain the associations between risk contexts and protective processes, two separate hierarchical multiple regression equations were examined to test the neighborhood risk model and peer delinquent behavior model. This approach allowed the researcher to examine how the supportive processes associated with the criterion variable when taking into consideration the risk contexts of peer delinquency or neighborhood risk separately. The use of hierarchical linear regression allows for understanding how specific combinations of the predictors variables account for additional variance in the criterion model at each step.

In Step 1 of the hierarchical linear multiple regressions, the control variable of SES was entered to account for any variance associated with SES in order to understand how the predictor variables might associate with adolescents' delinquent behavior beyond the context of SES. Perceptions of the risk variable (neighborhood risk or peers' delinquent behavior) along with gender, and adolescents' perceptions of mother support,

father support, neighborhood cohesion and family cohesion were added in Step 2 of both the neighborhood risk and the peer delinquency model. Then, for Step 3, all possible 2-way interactions were added to the equation. Finally, Step 4 included all possible 3-ways to see which interaction terms were significant.

Each of the 2-way and 3-way interactions that were significant in the initial models were included in their respective multiple regression models. Non-significant 2-way interactions were retained in the final models when the 2-way interactions were present within any significant 3-way interactions (Aiken & West, 1991). To determine the contributions of each block of variables, at each step any significant changes in the amount of variance accounted for were analyzed.

Based on Jaccard, Turrisi, and Wan (1990), Lansford et al (2009) provide the following steps for utilizing hierarchical regression to analyze moderators. First, the predictor and moderator variables are centered. Second, the slopes are calculated at two levels of the centered moderator. The levels of the centered moderator are obtained by using one standard deviation above the mean and one standard deviation below the mean of the moderator variable as cutoff points. Next, the statistical significance of the slopes was obtained by calculating the standard error and the *t*-score for each of the slopes (Jaccard et al., 1990). Interaction terms are then graphed based on high and low values (+1 and -1 *SD*) for the moderators. Simple slopes analyses are used to determine whether plotted regression lines are statistically significant in difference from zero at different levels of the moderator (Aiken & West, 1991; Dawson & Richter, 2006; Jaccard et al., 1990).

Dawson and Richter (2006) extend Aiken and West's (1991) approach by advocating the use of a significance test for assessing slope differences in 3-way interactions. Dawson (2010) provides formula spreadsheets that were utilized for post-hoc probing of the significant 2-way and 3-way interactions obtained in each of the final regression models. Dawson and Richter (2006) recommend a four step procedure for assessing slope differences. First, generic formulas for simple slopes are calculated for the association of two variables at high and low levels of the two other variables. This is similar to the recommendation of Aiken and West (1991) for assessing 2-way interactions. Then, the difference between two pairs of slopes is calculated. Thirdly, the standard error of the difference of the pairs of slopes is determined. The final step is to test whether the ratio of the difference between the pairs (of slopes) and the standard error of the difference between the two pairs differs from zero and is subsequently significant (Dawson & Richter, 2006).

Results

Correlations

Each of the four connectedness variables (neighborhood cohesion, family cohesion, mothers' and fathers' support) were negatively correlated with adolescents' reports of delinquent behavior and with the two risk factors (neighborhood risk and peer delinquent behavior; see Table 1). Gender was negatively correlated with adolescent delinquent behavior ($r = -.08, p = .043$) showing boys reported higher levels of delinquent behavior. Interestingly, gender also was negatively correlated ($r = -.13, p = .001$) with socioeconomic status indicating that boys, when compared to girls, reported higher socioeconomic levels. The socioeconomic status variable was subsequently chosen

as the control variable to be entered in the initial steps of the hierarchical multiple regression models.

Neighborhood Risk Model

In the preliminary hierarchical multiple regression analysis, Step 1 contained the addition of socioeconomic status as a control variable. SES did not account for a significant amount of variance alone, $R^2 = .000$, $F(1, 686) = .17$, $p = .676$. Step 2 added all of the support predictors (mothers' support, fathers' support, family cohesion, and neighborhood cohesion), gender and neighborhood risk. The results for Step 2 were $R^2 = 18\%$, $F(6, 680) = 21.44$, $p < .001$. Step 3 of the initial regression analysis added all possible 2-way combinations of the support predictors and neighborhood risk (e.g. mothers' support by fathers' support and family cohesion by neighborhood risk) for an overall $R^2 = 21\%$, $F(15, 665) = 7.83$, $p < .001$. Step 4 included all the possible 3-way interaction terms. The results of this Step were $R^2 = 24\%$, $F(20, 645) = 4.75$, $p < .001$. In this final step of the initial regression analysis the following predictors and interaction terms were significant: SES, fathers' support, neighborhood risk, mothers' support by neighborhood risk, fathers' support by neighborhood cohesion, fathers' support by family cohesion and gender by mothers' support by neighborhood risk. Predictors with a p -value of .10 or lower were retained in the next analyses until a combination of significant variables was obtained for the final model.

For the final model (see Table 2), the combined predictors of gender, SES, neighborhood risk, mothers' support, fathers' support, family cohesion, and neighborhood cohesion explained a significant amount of variance in adolescent delinquent behavior. In the final model, Step 1 did not explain significant variance in

adolescents' delinquent behavior. However, Step 2 revealed that SES ($b = .01, p = .003$), gender ($b = -.05, p = .026$), fathers' support ($b = -.07, p = .002$), neighborhood risk ($b = .14, p < .001$), and family cohesion ($b = -.11, p < .001$) were significant. Using R^2 as a fit indices (Cohen et al., 2003), indicates that the combination of the predictors alone accounts for 18% of the variance, $F(7, 680) = 21.44, p < .001$, in adolescents' delinquent behavior.

To examine the possible contribution of interactions among variables the following significant interaction terms were added in the third step of the regression model: gender by mothers' support, mothers' support by neighborhood risk, and fathers' support by family cohesion. The addition of 2-way interactions in Step 3 of the model explained additional variance, $\Delta R^2 = 1.8\%$, F Change = 5.16, $p = .002$, when compared to the predictors alone.

The final regression analyses highlighted three significant two-way interaction terms in the final step of the model: gender by mothers' support ($b = .10, p = .024$), mothers' support by neighborhood risk ($b = -.09, p = .004$), and fathers' support by family cohesion ($b = -.07, p = .035$). Slopes are reported for the 2-way and 3-way interactions. For boys, high mothers' support decreases the association with delinquent behavior when compared to girls (Figure 2: slope = $-.07, ns$). Girls have a slight increase of risk of delinquent behavior when reporting high maternal support, compared to low maternal support (slope = $.03, ns$). Figure 3 shows that the regression lines for the association between neighborhood risk and adolescents' delinquent behavior differ as a function of mothers' support. The level of mothers' support is not as important when adolescents' are reporting low neighborhood risk contexts. However, high mothers'

support (slope = .09, $p < .001$) does buffer the added detriment of living in a neighborhood characterized by heightened risk for adolescents' delinquency. As these results associate with fathers' support, the slope differences for family cohesion by fathers' support show that high levels of fathers' support makes the most difference in families with high cohesion (Figure 4). While family cohesion, when considered alone, does negatively correlate with adolescents' delinquent behavior, the decrease in adolescents' delinquent behavior is more pronounced when a context of high fathers' support is present (slope = -.11, $p < .001$).

Peers' Delinquent Behavior Model

Similar to the procedure for the neighborhood risk model, in the preliminary hierarchical multiple regression analysis of the peer delinquency model Step 1 contained the addition of socioeconomic status as a control variable. SES did not account for a significant amount of variance alone, $R^2 = .000$, $F(1, 686) = .17$, $p = .676$. Step 2 added all of the support predictors (mothers' support, fathers' support, family cohesion, and neighborhood cohesion) and peer delinquency. The results for Step 2 were $R^2 = 36\%$, $F(6, 680) = 55.37$, $p < .001$. Step 3 of the initial regression analysis added all possible 2-way combinations of the support predictors and peer delinquency (e.g. peer delinquency by fathers' support and family cohesion by fathers' support) for an overall $R^2 = 38\%$, $F(15, 665) = 18.65$, $p < .001$. Step 4 included all the possible 3-way interaction terms. The results of Step 4 were $R^2 = 42\%$, $F(20, 645) = 10.88$, $p < .001$. In this final step of the initial regression analysis the following predictors and interaction terms were significant: gender, peer delinquency, gender by peer delinquency, peer delinquency by fathers' support, peer delinquency by neighborhood cohesion, fathers' support by family

cohesion, gender by peer delinquency by fathers' support, gender by peer delinquency by neighborhood cohesion, and gender by fathers' support by family cohesion. Predictors with a p -value of .10 or lower were retained, along with the necessary two-way interactions contained within the significant 3-way interaction, in the next analyses until a combination of significant variables was obtained for the final model.

In the final peer delinquency model (see Table 3), the combined predictors of gender, SES, peer delinquent behavior, mothers' support, fathers' support, family cohesion, and neighborhood cohesion explained a statistically significant amount of variance in adolescent delinquent behavior. In the final model, Step 1 did not explain significant variance in adolescents' delinquent behavior. However, Step 2 revealed that gender ($b = -.06, p = .003$), peer delinquency ($b = .22, p < .001$), fathers' support ($b = -.06, p = .005$), and family cohesion ($b = -.07, p = .003$) were significant. Using R^2 as a fit indices (Cohen et al., 2003) indicates that the combination of the predictors alone accounts for 36% of the variance, $F(7, 680) = 55.37, p < .001$, in adolescents' delinquent behavior.

To examine the possible contribution of interactions among variables the following interaction terms were added in the third step of the regression model: gender by peer delinquency, gender by fathers' support, gender by neighborhood cohesion, peer delinquency by fathers' support, and peer delinquency by neighborhood cohesion. The addition of 2-way interactions in step 3 of the model explained additional variance, $\Delta R^2 = 1.2\%$, F Change = 2.67, $p = .021$, when compared to the predictors alone.

In Step 4, the significant 3-way interaction terms were added into the regression model. These included: gender by peer delinquency by fathers' support, and gender by

peer delinquency by neighborhood cohesion. The addition of the 3-way interaction terms also accounted for additional variance, $\Delta R^2 = 1.4\%$, F Change = 7.92, $p < .001$, for a total $R^2 = 39\%$, $F(14, 673) = 30.71$, $p < .001$.

The regression analyses revealed significant 2-way interaction terms in the final step of the model as the following: gender by peer delinquency ($b = -.06$, $p = .021$), peer delinquency by fathers' support ($b = -.08$, $p = .01$), and peer delinquency by neighborhood cohesion ($b = .15$, $p < .01$). The significant 3-way interaction terms in the final step of the model were gender by peer delinquency by fathers' support ($b = .08$, $p = .034$) and gender by peer delinquency by neighborhood cohesion ($b = -.13$, $p < .001$). Slopes are reported for the 2-way and 3-way interactions.

As shown in Figure 5, the regression lines show that boys (slope = .25, $p < .001$) are at more risk of delinquent behavior under conditions of heightened peer delinquent behavior when compared to girls (slope = .19, $p < .001$). Figure 6 shows that high fathers' support buffers some of the risk of having delinquent peers for adolescents' delinquent behaviors (slope = .20, $p < .001$). Those adolescents reporting low fathers' support were at greater risk of delinquent behavior in contexts of high peer delinquency (slope = .30, $p < .001$). The slopes for peer delinquency by neighborhood cohesion are shown in Figure 7. Interestingly, and in contrast to the expectation that neighborhood cohesion would serve as a buffer, adolescents' identifying high neighborhood cohesion were at greater risk than those reporting low neighborhood cohesion when the risk context of high peer delinquency was also present (slope = .31, $p < .001$). The results appear to indicate that adolescents' may not distinguish as readily between peers and

neighborhood and subsequently may feel connected to their delinquent peers resulting in a greater amount of delinquent outcomes.

Significant 3-way interactions were plotted following the recommendations of Dawson and Richter (2006). Along with the finding of a 2-way interaction for fathers' support by peer delinquency, when adding the gender of the adolescent, slope lines show that boys, in contrast to girls are at the most risk for the added risk of peer delinquency when also reporting low fathers' support ($t = -3.31, p = .001$; see Appendix C). Conditions of low fathers' support and high peer delinquency combine to create an environment where boys (slope = .42, $p < .001$) are more likely than girls (slope = .19, $p < .001$) to be delinquent (see Figure 8). Additionally, conditions of low fathers' support do not appear to be as much of a risk factor for girls under conditions of high or low peer delinquency ($t = .26, p = .793$). Figure 9 graphs the associations between peer delinquency, neighborhood cohesion and gender. Boys are at greater risk of delinquent behavior when reporting high neighborhood cohesion and their peers are delinquent (slope = .47, $p < .001$), when compared to girls under the same conditions (slope = .16, $p < .01$). For boys, the association between peer delinquency and delinquent behavior was stronger for those reporting high neighborhood cohesion as opposed to low neighborhood cohesion ($t = 3.59, p < .001$).

Discussion

Despite the contextual risk (Leventhal et al., 2009; Stattin & Kerr, 2009), the present results demonstrate the potential of contextual connectedness to protect adolescents against delinquent behavior. As young people move into the world of high school and interact with older and more experienced classmates, the role that peers,

friends and neighborhood play in a young person's life increases (Neild, Stoner-Eby, & Furstenberg, 2008). The adolescent is transitioning from childhood into adulthood and these "external to the family" forces are increasingly important (Carter & McGoldrick, 2004). However, the results of these analyses continue to affirm the importance of connectedness within families to buffer some of the risks of peers, friends and neighborhoods. Even after taking into account socioeconomic status, mothers' support moderates the association between risky neighborhoods and adolescents' delinquent behavior by activating in high risk neighborhoods. Also, fathers' support appears to activate under conditions of high peer delinquent behavior and serves to buffer some of the risk of delinquent behavior in adolescent boys. These results highlight the potential of connectedness to not only directly associate with adolescents' outcomes but to moderate the association between specific risk contexts and adolescents' delinquent behavior. Future research is needed to examine additional forms of connectedness (e.g., school, peers, community organizations) to determine how multiple domains of connectedness (Barber & Schluterman, 2008) may protect youth against delinquent behaviors especially within specific risk contexts.

An intriguing question raised by the findings is whether mothers' support plays a more pronounced role in protecting boys when compared to girls against delinquent behavior. Results of the present study demonstrated that the slope between mothers' support and boys approaches significance. However, future research is needed to clarify this association. The greater likelihood of an association for boys and delinquent behavior is also supported within the risk context of peer delinquent behavior. Specifically, when compared to girls, not only are boys more likely to be both delinquent and influenced by

delinquent peers, they are also better served by connectedness to the family. Also, support makes more of a difference in reducing delinquent behavior when paired with a highly cohesive family, suggesting that parental behaviors may be understood more fully when considered with the overall family system qualities. These findings suggest that while the father-adolescent dyadic relationship is important, this relationship is more salient when contained within a highly cohesive family environment. While not a focus of this study, this association between fathers' support and family cohesion with adolescents' delinquent behavior merits consideration in future research.

This study supports the findings of earlier work that articulates the nature of contextual risks for adolescents (Henry et al., 2008; Loeber et al., 2009b; O'Neil et al., 2001; Plunkett, Abarca-Mortensen, et al., 2007). However, the current findings point to a better understanding of these risks when considered with supportive family and neighborhood contexts. For example, Cashwell and Vacc (1996) found lower levels of family cohesion was a significant predictor of adolescents' delinquent behaviors, and was negatively correlated with adolescents' connections with delinquent peers. The present study also found a significant main effect of family cohesion on adolescent delinquent behavior in both models. Family cohesion did interact with fathers support to establish a protective process in the neighborhood risk regression model.

Although the research about delinquent involvement points to gender differences (Fagan et al., 2007; Werner & Silbereisen, 2003), research on gender as a moderator between risk contexts, protective processes and delinquent behavior has been less clear. The examination of gender differences within these analyses begins to clarify how risk contexts and supportive families associate with different outcomes for boys and girls.

Interestingly, in this study mothers' support alone was not found to be a significant predictor associating with adolescent delinquent behavior. However, mothers' support when considered in the context of risky neighborhoods and for boys was significantly associated with adolescents' delinquent behavior.

A methodological strength of this study is the targeting of a particularly vulnerable population for study. The specific sampling of a 9th and 10th grade population which is typically experiencing a substantial developmental transition as they move into more adult-like responsibilities and are spending more time with peers and less with family (Neild et al., 2008) allowed the researchers to understand how supportive contexts (neighborhood, family and parent behavior) interact with risky contexts at this particular period in adolescents' development. This study also addresses the need for a systems perspective when looking at individual outcomes (Walsh, 2006). As demonstrated in this study, individual outcomes are subject to complex interactions between multiple contexts. For example, while neighborhood cohesion was not found to associate directly to adolescent delinquent behavior when considered within the context of gender and peer delinquent behavior the results produced interesting and statistically significant findings that point at the complexity of assessing individual outcomes within systemic contexts.

Despite these findings, these conclusions are limited by several concerns. One limitation of this study is the use of adolescents' perceptions of risk and protective contexts. By not using objective measures of risk or protection, there may be questions about the validity of the adolescents' perceptions. Loeber and Stouthamer-Loeber (1986) highlight the possibility of an inflated likelihood of significant finding by solely using adolescents' perceptions. However, some research has highlighted the connection

between adolescents' subjective perceptions of neighborhood, family and parental variables and objective qualities (Plunkett, Abarca-Mortensen, et al., 2007; Stiffman, Hadley-Ives, Elze, Johnson, & Dore', 1999). These findings and the use of a systems perspectives provide a strong case for the use of adolescents' perception as their cognitive appraisals of environment shape their experience and subsequently associate with adolescents' qualities and well-being (Bronfenbrenner, 1986; Henry et al., 2008; Ogbu, 1981). Because both predictor and criterion variables are collected from the same source, this also increases the risk for shared method variance (Leventhal et al., 2009). Future research could address these issues by combining self-report with objective measures of the variables to provide additional insight into understanding the protective and risk contexts.

The possibility of collinearity also exists in this study. Many of the system variables are closely linked through theory (e.g., parental behaviors and family cohesion) (Becvar & Becvar, 2003; Carter & McGoldrick, 2004; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Whitchurch & Constantine, 1993) and some variables (e.g., mothers' support and fathers' support) may have overlapping associations with adolescents' well-being. Peterson et al. (1985) specifically address this problem with parental behavior variables by utilizing separate regression equations for mothers and fathers. After assessing for collinearity, the researcher found that while the variables were correlated, the diagnostics indicated that levels of collinearity did not warrant concern (Pedhazur, 1997). Another limitation of this study is the use of scales created specifically for the broader project which do not have previous use to provide estimates of reliability. The

present study can add to the field by providing reliability estimates for these newly created measures.

Because this study identifies specific, hypothesized associations between variables, there is also a possibility that visible associations between variables may be the result of some other, unidentified variable. Multiple regression as an analytic strategy can identify the variance accounted for by each variable, chosen based on a theoretical model (Cohen et al., 2003). Subsequently, only associations between the examined variables can be inferred. Even though this study utilizes a correlational, cross-sectional design and utilizes a purposive sample, which limits the researcher's ability to draw certain conclusions about associations between variables and limits generalizability of the findings to other non-specific populations (Gay & Airasian, 2000), this study provides interesting findings about how protective processes serve to reduce the strength of the association between risk contexts and adolescent delinquent behavior for African American and Latino adolescents. This study also elucidates the specific distinctions between mothers' and fathers' support by considering these separately and by including gender of the adolescent as a possible moderator of the association. Another strength of this study is the inclusion of family level variables along with parent-child dyadic processes.

The absence of significant direct associations between mothers' support and neighborhood cohesion as predictors for adolescents' delinquent behavior is interesting to note for both regression models. However, this study did elucidate the associations that both of these variables have with adolescents' delinquent behavior when risk contexts such as peer delinquent behavior and neighborhood risk were taken into account. These

results highlight the importance, as other authors have noted (Gorman-Smith, Tolan, & Henry, 2005; Henry et al., 2006; Leventhal et al., 2009; Stattin & Kerr, 2009), of considering individual outcomes within overall contexts. Future research can ascertain if these associations are causal and can determine if these results apply across racial lines or are specific to African American and/or Latino populations.

The most important findings from this study highlight the need, especially for a predominately African American and Latino population engaged in the transition from middle school or junior high school to high school, for considering how family and parental support contexts can interact with risk contexts like peer delinquent behavior and neighborhood risk. This study also highlights the importance of taking gender into account when considering how risk and protective processes interact. The importance of father support as a moderator between peer delinquent behavior and adolescents' delinquent behavior is more significant for boys than for girls. Since boys are at greater risk of delinquent behavior and deleterious associations with peers, this study highlights the need for targeted intervention with fathers and boys. Specific programming to bolster supportive, connected relationships between fathers and boys, especially in African American and Latino populations may bolster the protection for those adolescents who may not be able to readily alter their neighborhood or peer risk contexts.

Also, the findings indicate that when considering the deleterious characteristics of risky neighborhood that mothers' support makes more of a difference in those risk contexts. For example, low risk neighborhoods do not demonstrate the same attenuating association between high mothers' support and adolescents' delinquent behavior. Interestingly, in the neighborhood risk model fathers' support seems to have a direct

association with adolescents' delinquent behavior, but also interacts with high family cohesion to help create a more protective environment for adolescents. Again, this shows the importance of intervening not just at the individual or dyadic level but the need to consider other contexts, such as overall family and neighborhood characteristics. Future research could identify if this association is causal, through longitudinal designs, and could determine if these findings generalize to this specific population or are important at other developmental transition points by including multiple assessment points throughout participants' lifespans.

The results of this study have important implications for prevention and intervention practice. The evaluation of connectedness can be important as a part of the assessment process and for designing specific treatment protocols aimed at addressing the problem of delinquent behavior. The inclusion of the greater family system and in particular, parents, into the treatment is important given the nature of the associations between the protective process of connectedness and risk contexts. By including family and parents as active participants in intervention and prevention programs, the connection between adolescents, family and parents is encouraged in such a way that adolescents will see their family as a supportive resource to which they can turn for help in resisting the deleterious influence of delinquent peers and risky neighborhoods.

Specific programming could include family group programming that introduces families to risky, yet controlled, contexts such as outdoor wilderness challenge settings (e.g., ropes courses, climbing, rappelling) and then provides training in skills that build supportive connections (e.g., communication, trust, respect, interdependence) among the family. Other programming could assist the family in negotiating the balance between

allowing a youth to express independence and assert responsibility over their daily lives (e.g., choosing friends, getting a job, driving) and providing a supportive environment that the youth can return to for assistance and processing their learning experiences. As Stattin and Kerr (2000) articulate, parental control, especially with older adolescents, is only possible if the adolescents feel connected enough to their family to disclose how they are managing the balance between freedom and responsibility.

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Table 1

Means, Standard Deviations, and Correlations (N = 688)

Variables	Mean ^a	SD ^a	1	2	3	4	5	6	7	8	9
1. Adolescent delinquent behavior ^b	.24	.40	-								
2. Socioeconomic status	14.36	4.24	.02	-							
3. Gender ^c	.54	.50	-.08*	-.13***	-						
4. Neighborhood risk	2.00	.67	.33***	-.19***	-.01	-					
5. Peer delinquent behavior	.57	.81	.57***	.00	.02	.28***	-				
6. Mothers' support	3.48	.56	-.21***	.15***	-.06	-.16***	-.23***	-			
7. Fathers' support	3.30	.66	-.26***	.14***	-.02	-.23***	-.20***	.50***	-		
8. Family cohesion	3.02	.55	-.29***	.15***	-.07*	-.30***	-.26***	.50***	.47***	-	
9. Neighborhood cohesion	2.92	.68	-.14***	.06	-.01	-.30***	-.07*	.20***	.21***	.32***	-

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$,^aBefore centering; ^bAdolescents' delinquent behavior (transformed mean = .34, SD = .35) ^cGender (*boys* = 0, *girls* = 1)

Table 2

Neighborhood Risk Model: Summary of Hierarchical Multiple Regression for Selected Demographics, Neighborhood Risk, Aspects of Connectedness, Moderators and Adolescent Delinquent Behaviors (N = 688)

Variable	Step 1			Step 2			Step 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
SES	0.00	0.00	.02	0.01	0.00	.10**	0.01	0.00	.11**
Gender				-0.06	0.02	-.08*	-0.06	0.02	-.08*
Neighborhood risk (NR)				0.14	0.02	.27***	0.14	0.02	.27***
Mothers' support (MS)				-0.04	0.03	-.06	-0.07	0.04	-.11
Fathers' support (FS)				-0.06	0.02	-.12**	-0.07	0.02	-.14**
Family cohesion (FC)				-0.10	0.03	-.16***	-0.11	0.03	-.17***
Neighborhood cohesion (NC)				0.01	0.02	.02	0.01	0.02	.03
MS x Gender							0.10	0.04	.12*
NR x MS							-0.09	0.03	-.11**
FS x FC							-0.07	0.03	-.08*
R^2		.00			.18			.20	
<i>F</i> for change in R^2		.17			24.98***			5.16**	

* $p < .05$, ** $p < .01$, *** $p < .001$; Gender (*boys* = 0, *girls* = 1)

Notes: SES, neighborhood risk, neighborhood cohesion, father support, mother support and family cohesion were centered at their means. MS = Mothers' support; FS = Fathers' support; FC = Family cohesion; NR = Neighborhood risk; NC = Neighborhood cohesion.

Table 3

Peer Delinquent Behavior Model: Summary of Hierarchical Multiple Regression for Selected Demographics, Peer Delinquent Behavior, Aspects of Connectedness, Moderators and Adolescent Delinquent Behaviors (N = 688)

Variable	Step 1			Step 2			Step 3			Step 4		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
SES	0.00	0.00	.02	0.00	0.00	.04	0.00	0.00	.04	0.00	0.00	.04
Gender				-0.06	0.02	-.09**	-0.06	0.02	-.09**	-0.06	0.02	-.10**
Peer delinquency				0.22	0.01	.52***	0.25	0.02	.59***	0.25	0.02	.60***
Mothers' support				0.01	0.02	.01	0.01	0.02	.02	0.01	0.02	.02
Fathers' support				-0.06	0.02	-.11**	-0.07	0.03	-.13*	-0.06	0.03	-.11*
Family cohesion				-0.07	0.02	-.11**	-0.08	0.03	-.12	-0.07	0.02	-.12*
Neighborhood cohesion				-0.02	0.02	-.05	-0.00	0.02	-.00	-0.01	0.02	-.01
PD x Gender							-0.07	0.03	-.12*	-0.06	0.03	-.11*
FS x Gender							0.03	0.03	.05	0.01	0.03	.02
NC x Gender							-0.04	0.03	-.06	-0.03	0.03	-.05
PD x FS							-0.04	0.02	-.06*	-0.08	0.03	-.12**
PD x NC							0.02	0.02	.03	0.09	0.03	.15**
PD x FS x Gender										0.08	0.04	.10**
PD x NC x Gender										-0.13	0.04	-.17***
R^2			.00			.36			.38			.39
F for change in R^2			.17			64.56***			2.67*			7.92***

* $p < .05$, ** $p < .01$, *** $p < .001$; Gender (*boys* = 0, *girls* = 1)

Notes: SES, peer delinquency, neighborhood cohesion, father support, mother support and family cohesion were centered at their means. FS = Fathers' support; FC = Family cohesion; PD = Peer delinquency; NC = Neighborhood cohesion.

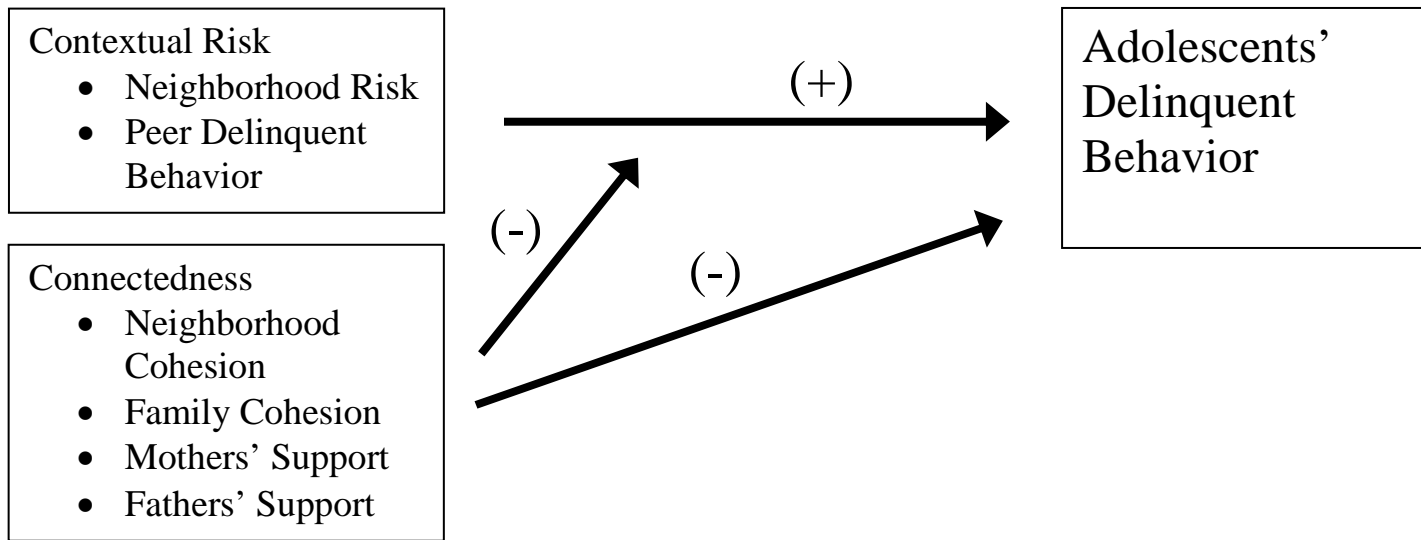


Figure 1. Theoretical model of contextual risk, connectedness, and adolescents' delinquent behaviors.

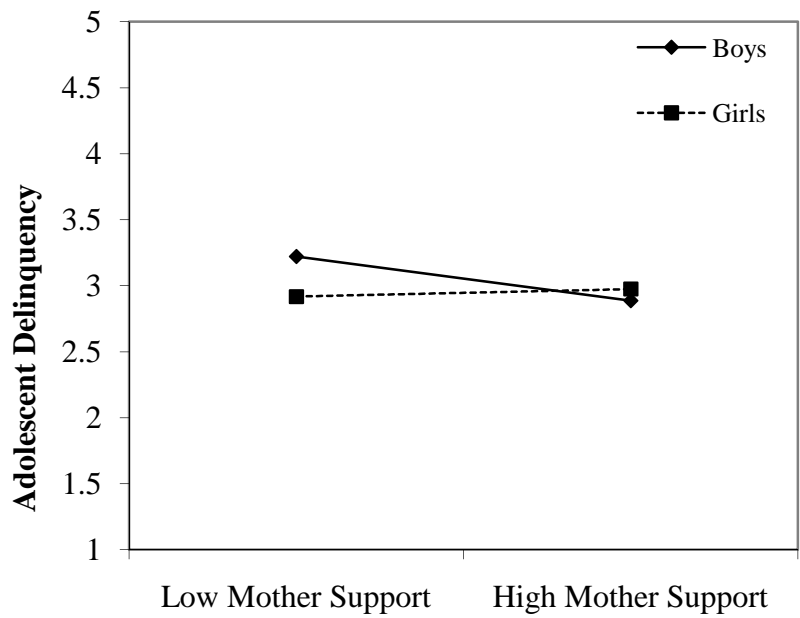


Figure 2. Slope differences for neighborhood risk regression model. 2-way interaction including mothers' support by gender.

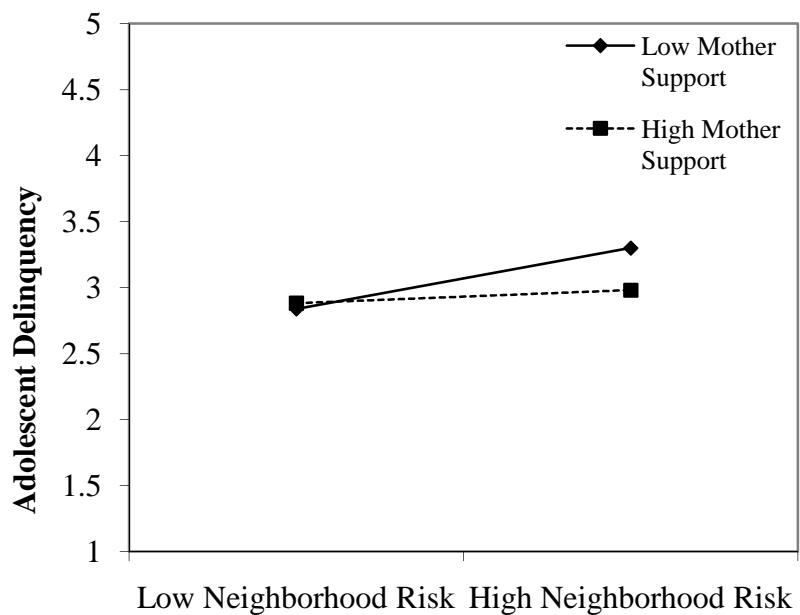


Figure 3. Slope differences for neighborhood risk regression model. 2-way interaction including neighborhood risk by mothers' support.

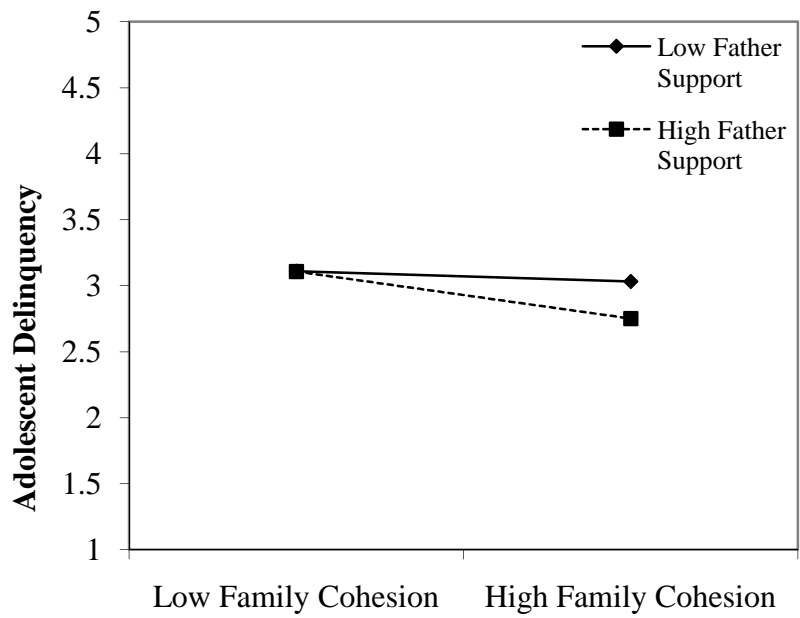


Figure 4. Slope differences for neighborhood risk regression model. 2-way interaction including family cohesion by fathers' support.

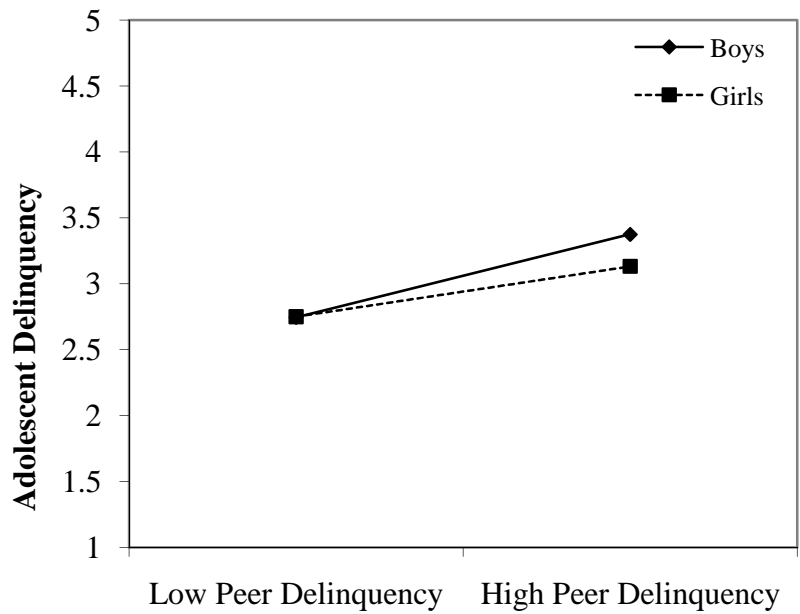


Figure 5. Slope differences for peer delinquency regression model. 2-way interaction including peer delinquency by gender.

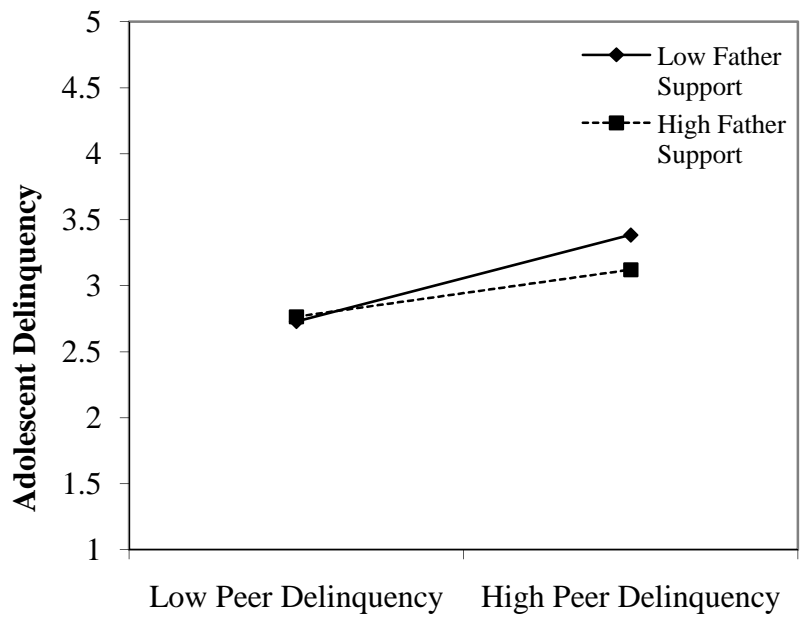


Figure 6. Slope differences for peer delinquency regression model. 2-way interaction including peer delinquency by fathers' support.

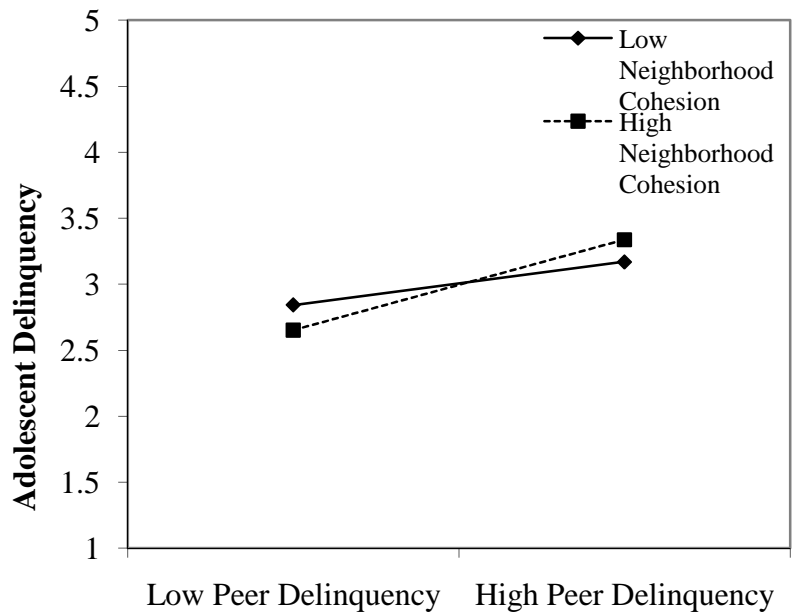


Figure 7. Slope differences for peer delinquency regression model. 2-way interaction including peer delinquency by neighborhood cohesion.

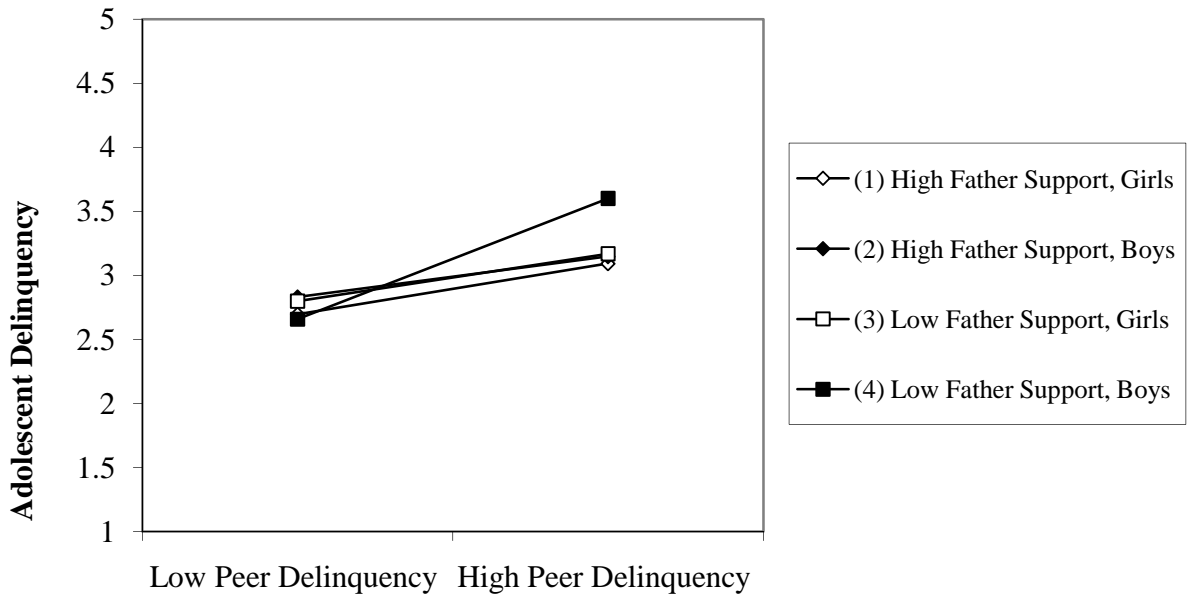


Figure 8. Slope differences for peer delinquency regression model. 3-way interactions including peer delinquency by fathers' support by gender. Figure includes significance tests of slope differences (Dawson, 2010; Dawson & Richter, 2006).

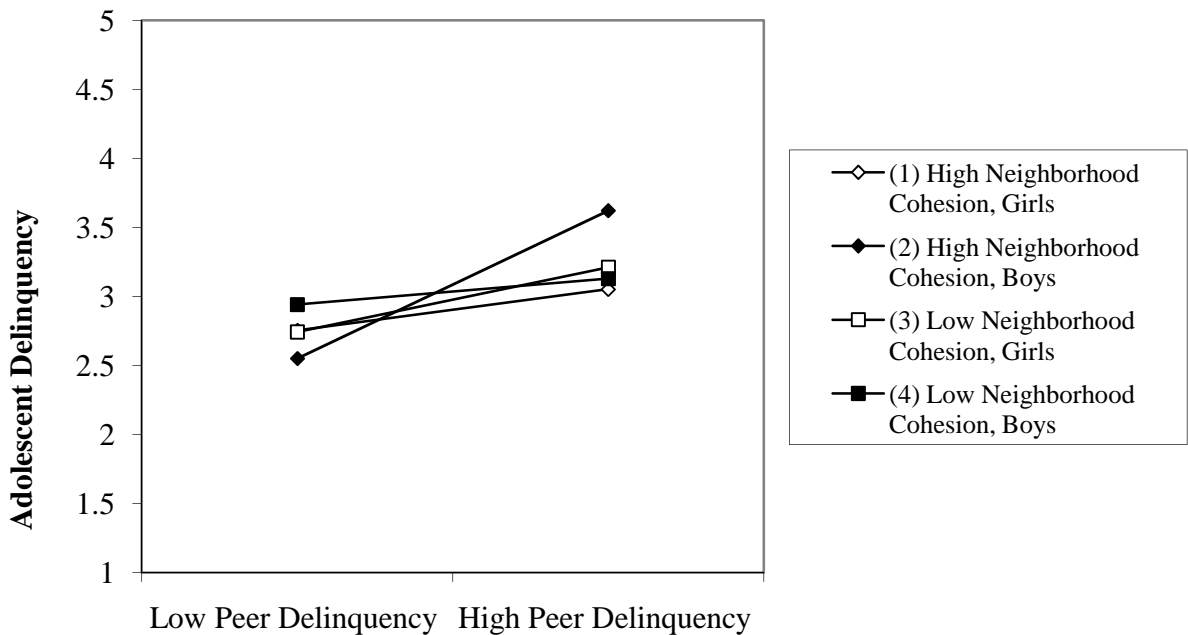


Figure 9. Slope differences for peer delinquency regression model. 3-way interactions including peer delinquency by neighborhood cohesion by gender. Figure includes significance tests of slope differences (Dawson, 2010; Dawson & Richter, 2006)

APPENDIX A

DISSERTATION PROPOSAL

Overview

Researchers, practitioners, and theorists continue to investigate and elucidate the role of neighborhoods, families, and peers associated with the lives, experiences, and well-being of adolescents. The study of protective systems continues across a wide variety of ethnic populations and socioeconomic classes. For populations that exist in environments where more adversity and stress are present, the protective role of families and the larger neighborhood contexts and processes is increasingly important (Kirby & Fraser, 1997). As children move through adolescence into adulthood, the critical role of protective systems becomes increasingly evident. While family relationships are important during early adolescence, in many cases relationships with those outside family systems (e.g., peers, friends and neighbors) increase in prominence (Carter & McGoldrick, 2004).

Both overall family systems and parents are important during this critical developmental period when certain ecological contexts may contain more developmental adversity for adolescents. Neighborhoods and communities with elevated rates of non-resident fathers, poverty, crime, and discrimination are portrayed as stacking the deck against adolescents (Head, 1995; Loukas, Suizzo, & Prelow, 2007). As early as the first half of the 20th century, researchers found associations between parental behaviors,

typically maternal, and adolescents' well-being (Schaefer, 1959). In the past two decades, researchers sought to elucidate the role of paternal behavior as well. The results show that both adolescents' biological and non-biological father figures can serve a protective function by buffering some of the risk associated with adverse ecological contexts (Sarkadi, Kristiansson, Oberklaid, & Bremberg, 2008). Further, longitudinal research found family variables are associated with more positive outcomes for adolescents (Holmes, Jones-Sanpei, & Day, 2009).

In terms of adolescents' risk, delinquency has received extensive attention from researchers across varying fields (Farrington, Lerner, & Steinberg, 2004; Hawkins et al., 1998; Lipsey & Derzon, 1998). Regular governmental funding and attention towards the problem of adolescents' delinquent behavior is initiated and organized by the Office of Juvenile Justice and Delinquency Prevention housed within the U.S. Department of Justice. Despite considerable discussion of juvenile delinquency, additional research is needed to tease out the associations that exist among protective process and risk environments (Wasserman et al., 2003).

A useful paradigm for understanding adolescents' delinquent behaviors is to consider the systemic contexts in which those behaviors exist and occur. These contexts, or system level characteristics, include deleterious characteristics--such as having delinquent peers or living in a high crime neighborhood--considered to have a positive association with specific, negative adolescents' characteristics (delinquent behaviors). Yet, supportive contexts, or a sense of connectedness to others, holds potential to buffer the associations between risk-filled environments and negative behaviors (Walsh, 2006). Consideration of multiple protective contexts allows researchers to move beyond the

individual and developmental domains towards systemic contexts (Masten, 2007). For this study, *protective processes* are defined as environments, qualities, or relationships which increase the probability of positive outcomes or moderate the association between risk contexts for individuals and groups (Kirby & Fraser, 1997; Masten, Cutuli, Herbers, & Reed, 2009; Rutter, 1987; Walsh, 2006).

While the risk for delinquent behavior occurs across racial lines, juvenile arrest rates do not mirror racial proportions. In 2007 the juvenile arrest rate for all ethnic minorities was 1.7 times that of European Americans and for African Americans, specifically, 2.1 times that of European Americans (Puzzanchera & Adams, 2010). Rather than compare ethnic minority groups to European Americans, this study oversamples from African American and Latino populations to increase the potential for understanding the risk contexts and protective processes for ethnic minority populations. (Werner & Silbereisen, 2003). Based on these ideas, using a sample overrepresented by Latino and African American youth, this study investigated (a) how adolescents' perceptions of contextual risks (neighborhood or peer) and contextual connectedness (neighborhoods, family systems, or parents) related to adolescents' reports of delinquent behavior, and (b) whether adolescents' perceptions of connectedness in neighborhoods, family systems, father-adolescent subsystems, or mother-adolescent subsystems moderated (e.g. altered the strength of the association between the predictor and criterion variable: Baron & Kenny, 1986) the association of contextual risks and adolescents' reports of delinquent behaviors.

Theoretical Foundations

This study utilizes systems perspectives to examine the role that neighborhoods, overall family, and parent contexts play in protecting adolescents against delinquency, including buffering specific environmental risks that adolescents may experience. Systems perspectives are based on the work of general systems theorists, such as von Bertalanffy in biology, Norbert Wiener's cybernetics and control systems and the work of the Bateson group as they applied general systems ideas to families (Hanson, 1995; Whitchurch & Constantine, 1993; White & Klein, 2002). Whitchurch and Constantine (1993) described the importance of considering multiple levels within a system as context for understanding how individual outcomes occur. Other theorists also have included an argument for understanding the family level as a primary context for adolescents' development (Bronfenbrenner, 1986, 2005; Bubolz & Sontag, 1993; Carter & McGoldrick, 2004).

While some researchers and practitioners consider families as the primary context, others consider the role of neighborhood and peer contexts in adolescents' development (Bubolz & Sontag, 1993; Luthar, Cicchetti, & Becker, 2000). Research shows that adolescents whose neighborhood context is characterized by elevated rates of crime and violence are more likely to experience negative qualities such as delinquent behavior and violence (P. H. Tolan, Gorman-Smith, & Henry, 2003). Systems perspectives acknowledge neighborhood, peer, and family contexts by describing the reciprocal interactions of neighborhood and family systems and adolescents (Whitchurch & Constantine, 1993). These transactional processes are seen as critical to the

experiences of family members and can better our understanding of adolescents' resilience in risk contexts.

By utilizing systems perspectives and considering multiple system levels, family resilience perspectives place an emphasis on the role that family relationships play in both family and individual well-being (Walsh, 2006). *Family resilience* is described as the positive characteristics of family (connectedness, positive communication, and support) that aid in fostering adaptation of individual members and the family as a whole. Families and the broader system have the potential to protect against risk, in part, by providing a sense of connectedness. Within families, strengths (e.g., support and cohesion) attest to “the family potential for self-repair and growth out of crisis and challenge” (Walsh, 2006, p. 17). Hawley and DeHaan (1996) characterize family resilience as a construct best understood as a systemic quality. Adolescents' delinquent behaviors, when viewed within the context of family systems, present both adverse risk and an opportunity for family systems to adapt to the needs of specific family members. This adaptation is considered a hallmark of resilience at the family level (Hawley & DeHaan, 1996; McCubbin & McCubbin, 1988). Recent investigation highlights the protective role that families can play in the lives of adolescents (Ingoldsby et al., 2006; Laird, Criss, Pettit, Dodge, & Bates, 2008; P. H. Tolan et al., 2003).

While some theorists consider systems perspectives as primarily interested in overall family system qualities, Carter and McGoldrick (2004) describe the importance of considering the development of individual members taking place within individual, family, and larger social systems. These “significant emotional relationships” (p. 5) across various systems are especially salient for adolescents. For this reason, systems

perspectives provide a theoretical foundation for conceptualizing the role of family, parental, and neighborhood levels in this project. Systems perspectives are important to understanding the association between environmental predictors and adolescents' qualities, because this viewpoint posits that system components are interdependent (Whitchurch & Constantine, 1993). Thus, the characteristics of neighborhood, peer, and family systems are central to understanding individuals embedded within broader systems. For the purposes of this study, selected system parts (neighborhood qualities, overall family system qualities, and parental behaviors) are proposed to be associated with adolescents who are embedded within those salient systems.

Hanson articulated the importance of considering meaning and perception within systems perspectives by stating "Humans interpret and create a world of meaning that mediates all behavior" (1995, p. 77). Thus, subjective experiences provide the means through which individuals encounter family, peer and neighborhood. Similarly, Becvar and Becvar (2003) highlighted the role that perception plays in second-order cybernetics as associated with systems perspectives. These authors' basic premise was that individuals are both "acted upon" and directly influence their current system. The primary means of systems change is through the filter of perception. Specifically, as individuals interpret their respective experiences, then individuals' behaviors reflect their interpretations (Becvar & Becvar, 2003). For the purposes of this study, it is important to consider how adolescents' perceptions and awareness of risk and protective processes associate with adolescents' well-being. Research has demonstrated not only that subjective and third party observed characteristics are correlated, but that in many instances individuals' perceptions are central to understanding the links between overall

system characteristics and individuals qualities (Plunkett, Abarca-Mortensen, Behnke, & Sands, 2007; Stiffman, Hadley-Ives, Elze, Johnson, & Dore', 1999).

Adolescents' Delinquent Behavior

Adolescents' delinquent behavior is a notable challenge for society, family systems, parents, and adolescents. Adolescence is widely recognized as a developmental period with sensitive and powerful changes occurring in adolescents' lives. Changing, relational connections across systemic levels are occurring along with developing a sense of self apart from the family of origin (Carter & McGoldrick, 2004). This movement from childhood to adulthood involves increasing relationships with peer systems, some of which provide supportive contexts and others which create risk contexts that increase the risk for delinquent behavior. Delinquent behaviors may strain families and society through risky, dangerous behavior by adolescents, increased emotional, relational, and financial stress as families seek to address or manage adolescents' behaviors as well as a breakdown of societal norms (Farrington, 2009; Loeber, Burke, & Pardini, 2009a). Investigating adolescents' delinquent behavior is important because juvenile offenses are significant predictors of adult offenses (Wolfgang, Thornberry, & Figlio, 1987). Adolescents' delinquent behavior continues to be an important societal problem to understand (Bean, Barber, & Crane, 2006). Recent Federal Bureau of Investigation/Office of Juvenile Justice Delinquency Prevention statistics show juvenile arrest rates of roughly 1.6 million for 2008 (Puzzanchera & Adams, 2010). As risk and supportive contexts are understood, public policy, intervention and prevention programs, and educational initiatives can be further refined.

Most definitions of adolescents' delinquent behavior include both criminal behaviors (Farrington, 2009) and status offense behaviors that are illegal for youth (e.g., school truancy, running away) but not for adults (Flannery, Hussey, Biebelhausen, & Wester, 2003). In addition, some definitions include precursors to illegal activity as the violation of social norms (Stattin & Kerr, 2000). Delinquent behavior may or may not bring youth into contact with the legal system, depending upon whether youth interact with legal authorities based upon their externalizing behaviors (Farrington, 2009; Loeber et al., 2009a; Thornberry & Krohn, 1997).. Examples of delinquent behaviors can include school truancy, lying, disobedience to parents and other authority figures, illegal-unlawful behavior, carrying weapons, selling drugs, or getting arrested. A broad definition of delinquency has the benefit of including some of the precursors to illegal activity since adolescents' movement towards independence through participation in delinquent behaviors cuts across family and broader societal domains (Farrington et al., 2004). For the purposes of this study, delinquency is defined as adolescents' reports of engaging in illegal and/or criminal behavior (e.g., trespassing, theft, selling drugs, vandalizing, carrying a weapon, robbing someone and being arrested), skipping school, being stopped or harassed by the police, involved in a gang or used force to get something one wants. These behaviors are commonly included in scholarship investigating adolescents' delinquent behaviors (Farrington, 2009; Loeber et al., 2009a; Loeber, Stouthamer-Loeber, & Farrington, 2008; Thornberry & Krohn, 1997; Wasserman et al., 2003; Wolfgang et al., 1987).

While some researchers have identified African American adolescents as having a greater likelihood of experiencing delinquent outcomes (Goodkind, Wallace, Shook,

Bachman, & O'Malley, 2009; Rosenfield, Phillips, & White, 2006), Holmes, Jones-Sanpei, and Day (2009), utilizing a nationwide longitudinal data set, found that European American adolescents were more likely than their African American counterparts to report engaging in delinquent behaviors. These discrepancies may exist in part due to structural, cultural, and environmental differences. In support of findings of delinquent outcomes, ethnic minority group membership may lead to more stressful circumstances (e.g., discrimination) than those experienced by the ethnic majority group (Brown, Meadows, & Elder, 2007; Kessler, Mickelson, & Williams, 1999; Peters & Massey, 1983). Holmes et al. (2009) also recommend the inclusion of Hispanic populations as researchers look for the associations between risk contexts and adolescents' delinquency. This study will utilize a sample that over-represents ethnic minorities to elucidate how contextual risks and protective processes associate with adolescents' delinquency in these populations.

Farrington et al. (2004) highlighted two assessment methodologies for delinquency. Delinquency is traditionally measured using some sort of tracking of official arrest records or through the reliance on self-report of delinquent behaviors from adolescents, family, or school officials. Yet, this approach is limited because official records involve only offenses that meet the legal definition of delinquency that were identified by authorities, only representing the most serious offenders and offenses (Farrington et al., 2004). Alternatively, the use of the second approach, self-report data of delinquent behaviors, has the benefit of including those behaviors that adolescents engaged in that might not have been caught and includes those behaviors closely

connected to anti-authority characteristics (Farrington et al., 2004; Loeber, Burke, & Pardini, 2009b).

To allow for consideration of adolescents' experiences with delinquent behavior that may or may not be detected by authorities, the present study uses self-report data. The use of self-report data is consistent with systems perspectives as the external contexts (family, neighborhood, school, and peer) interact with an individual through the filter of perception. Bronfenbrenner (1986) articulates a person-process-context model which emphasizes the importance of considering how individuals interact with systems level contexts. The focus on individuals' meanings of contexts is measured through the perceptions of adolescents, allowing the researcher to ascertain how adolescents' subjectively appraises the quality of the system level variables. Thus, considering adolescents' perceptions of protective contexts is central to understanding adolescents' delinquent behaviors (Bronfenbrenner, 1986; Henry, Merten, Plunkett, & Sands, 2008; Ogbu, 1981).

Contextual Risks for Adolescents' Delinquent Behavior

Both neighborhood risk (Ingoldsby et al., 2006; Leventhal & Brooks-Gunn, 2000; Loeber et al., 2005) and peer delinquency (Elliott & Menard, 1996; J. E. Kim, Hetherington, & Reiss, 1999; Stattin & Kerr, 2009) have been directly connected to adolescent delinquent behavior. While the contextual risks for delinquency have been well documented, the understanding of how these risks directly associate with adolescents' delinquent behavior when considered within the context specific protective systems for a largely ethnic minority population is less clear. To that end, to better understand the unique associations between risk and delinquency, neighborhood risk and

peer delinquency will be considered in separate theoretical models to parse out any unique associations with protective processes.

Neighborhood Risk

Neighborhoods provide many experiences for adolescents. They can be places where adolescents are nurtured and loved by a “village.” Alternatively, neighborhoods can be places where adolescents are exposed to risky behavior and may see or participate in dangerous, if not criminal, behavior. When attempting to describe the negative environment that neighborhoods might provide, researchers often utilize structural measures of neighborhood adversity (Leventhal, Dupéré, & Brooks-Gunn, 2009). The most common among these is lower socioeconomic levels (Gephart, 1997), but many also include ethnic heterogeneity and residential mobility as structural risk factors (Beyers, Bates, Pettit, & Dodge, 2003; Leventhal & Brooks-Gunn, 2000; Sampson, Raudenbush, & Earls, 1997; Stattin & Kerr, 2009).

While much of the research into the effects of neighborhood has utilized structural measures of neighborhood risk (Leventhal et al., 2009) one of the limitations of census data can be the age of the provided information, as much as 10 years old. Some authors instead argue for the importance of subjective perceptions of neighborhood as significant predictors (Henry et al., 2008; O'Neil, Parke, & McDowell, 2001; Plunkett et al., 2007). Stiffman, Hadley-Ives, Elze, Johnson, and Dore' (1999) indicate that these perceptions are most closely associated with adolescents' behavior. Bass and Lambert (2004) presented adolescents' perceptions of neighborhoods as a shared construct through spatial dependence, namely that adolescents that lived closer together evaluated their neighborhoods in like ways, giving support to the idea that perceptions describe a larger

shared reality of neighborhood living. Other authors presented findings that adolescents' perception of neighborhood risk or dangerousness are negatively associated, either directly or indirectly, with individual characteristics such as academic achievement (Henry et al., 2008), self-esteem, self-efficacy, academic aspirations, grades (Plunkett et al., 2007; Supple, Ghazarian, Frabutt, Plunkett, & Sands, 2006) and mental health (Stiffman et al., 1999). Taking into account the importance of subjective perceptions regarding neighborhood, recent research highlighted the source of report and found that adolescents' perceptions of neighborhood risk are significantly associated with delinquency, while mothers' perceptions of neighborhood risk were not (Byrnes, Chen, Miller, & Maguin, 2007). Risky neighborhoods, as reported by parents, along with peers' delinquency, were found to be significant predictors of violent offenses (Loeber et al., 2005). This study will utilize the adolescents' self-reports of perceived neighborhood risk.

Leventhal and Brooks-Gunn (2000) describe theoretical frameworks for linking neighborhood processes with adolescents' well-being. For the purposes of the current study, the contagion or epidemic model which describes neighborhoods as places where problem behavior is more likely to occur and for adolescents to be involved with or influenced by that risky behavior (Leventhal & Brooks-Gunn, 2000; Mayer & Jencks, 1989). Thus, adolescents' perceptions of neighborhoods provide a key process through which neighborhoods are associated with adolescents' well-being.

Many neighborhood studies include family level characteristics when attempting to understand the association between neighborhood level social structures and individuals' well-being. Leventhal et al. (2009) detail a relationships and ties model,

which describes how parental relationships provide a path for the associations between neighborhood contexts and adolescents' outcomes. Leventhal and Brooks-Gunn (2000) express concern about misspecification of neighborhood effects that may occur by overlapping neighborhood and family level within a single variable. Family qualities may be either directly associated with adolescent delinquent behaviors or may act as potential moderators or buffers for neighborhood risk in association with adolescents' delinquency (Beyers et al., 2003; Cook, Shagle, & Degirmencioglu, 1997; Leventhal et al., 2009; Schonberg & Shaw, 2007).

Peers' Delinquent Behavior

Adolescence is a particularly vulnerable time for the development of negative behaviors associated with involvement with delinquent peers (Dishion & Andrews, 1995; Hawkins et al., 2000; Moffitt, 1993). Peer contexts can serve important socialization roles as well as providing understanding for adolescents' negative behaviors. Within systems perspectives, peer relationships become increasingly important to adolescents as protective boundaries around families become more permeable and connections with peers increase (Carter & McGoldrick, 2004). Wasserman et al., (2003) found support for the idea that delinquent peers socialize non-delinquent adolescents into becoming delinquent. For example, longitudinal data showed an increased risk for the development of delinquency as children move from association with non-delinquent peers to peers with increasing levels of delinquency, and subsequently engage in delinquent offenses (Elliott & Menard, 1996; Loeber, DeLamatre, Keenan, & Zhang, 1998). Further association with delinquent peers heightens risk for adolescents to move into increased frequency and severity of offenses (Simons, Wu, Conger, & Lorenz, 1996). While gang

involvement may be an extreme form of delinquent peer association, gang membership significantly associates with delinquent behaviors for adolescents (Howell, 1998; Thornberry & Burch, 1997; Wasserman et al., 2003).

The source of reports of peer delinquency has concerned some researchers (Gottfredson & Hirschi, 1990; Zhang & Messner, 2000), while others have noted that indirect sources of reporting peers' delinquent behavior do not show as strong of an association with adolescents' delinquency as direct reports may (Thornberry & Krohn, 1997). Zhang and Messner (2000) proposed an overlap between adolescents' reports of their peers' delinquent behaviors and their own delinquent behaviors that may potentially confuse associations between these variables. However, despite these concerns, the association between having delinquent peers and adolescents' own delinquent behaviors is well established (Dishion & Andrews, 1995; Farrington et al., 2004; Lipsey & Derzon, 1998; Thornberry & Krohn, 1997).

The Protective Potential Contexts of Connectedness

Luthar et al. (2000) highlight the ambiguity of the concept of “protective” factors in resilience research. These authors argue for a several distinctions with language used in studies of resilience. Luthar et al. articulate the difference between individuals' traits and processes that are protective. The authors also call for the use of qualifying descriptions of protective processes. For example, the use of “protective-stabilizing” when the moderator variable contributes to stability in positive outcomes even though the environment may contain increasing risk (Luthar et al., 2000). Alternately, Masten, Cutuli, Herbers, and Reed (2009) describe a protective factor as “a measurable characteristic of a group or individuals that predicts positive outcome in the context of

risk or adversity” (p. 119). To date, much of the child focused work has used the terms “protective factor” and “protective process” interchangeably (Masten et al., 2009). Furthermore, Walsh (2006) distinguishes between processes and factors by advocating a shift from individually-based factors to systemic processes. These processes are identified at various systemic levels and associate both directly and indirectly to adolescents’ well-being.

Recent scholarship has identified three different approaches for examining protective processes (Connell, Dishion, & Deater-Deckard, 2006; Loeber et al., 1998). The main effects approach considers the direct association between protective processes and outcome variables. The variable-centered approach examines how the predictor and criterion variables are associated when considering two-way and three-way interactions with protective processes as moderators, while the person-centered approach examines whether resilient adolescents report significantly higher levels of protective processes than non-resilient adolescents (Connell et al., 2006; Costello, Swendsen, Rose, & Dierker, 2008; Laird et al., 2008). The present study utilizes a combination of the main effects and variable-centered approaches to elucidate how contextual connectedness may buffer contextual risks.

Recent investigation highlights the interplay between risk and protective processes for adolescents’ negative qualities. Both neighborhood and family characteristics have been connected to resilience for children and adolescents who experienced higher risk environments (Jaffee, Caspi, Moffitt, Polo-Toms, & Taylor, 2007). Thus, the present study is designed to examine the direct associations between protective processes and adolescents’ well-being and will examine both neighborhood

and family processes as potential moderators for the association between perceptions of neighborhood risk, reports of peers' delinquent behavior and self-reports of adolescents' delinquent behavior. In essence, this study will seek elucidate protective-stabilizing processes (Luthar et al., 2000) for environments that have been associated with elevated risk for negative adolescents' qualities.

With systems perspectives as an organizing framework, certain protective processes could be grouped together in what some authors describe as connectedness. Walsh (2006) describes connectedness as a balance of unity, support, and working together within a system, while still providing autonomy for individuals. This concept of connectedness links an individual to greater systems levels (Carter & McGoldrick, 2004). If adolescents describe relationships within their neighborhoods, overall family systems, and with parents as supportive, caring, and available as help is needed, their connectedness within these systems may be important to understand. Recent authors argue for a consideration of the concept of support across the domains of neighborhoods, families, parents and peers in light of complex systems that associate with adolescents' characteristics (Rueger, Malecki, & Demaray, 2010). In light of these recommendations, this present study will investigate how connectedness at the neighborhood, family and parent-child relationship levels may serve as protective processes for adolescents' well-being. More specifically, does connectedness protect against delinquent behavior and when risk (neighborhood or peer) is present for adolescents, does connectedness to neighborhoods, families, and parents moderate the association between risk environments and adolescents' delinquent behaviors.

Neighborhood Cohesion

Much of the research into neighborhood level protective processes focuses on structural characteristics, such as crime rate, poverty levels, and ethnic diversity. Although structural characteristics may provide insights into direct associations of neighborhoods to adolescents' well-being, recent research shows the primary role that perceptions may play in association with adolescents' outcomes (Plunkett et al., 2007; Stiffman et al., 1999).

Neighborhood cohesion (i.e., connection, support or caring about neighborhood) is a contextual connectedness that holds potential to protect youth against delinquent behavior. Sampson et al. (1997) reported that perceived neighborhood collective efficacy (connectedness) was negatively associated with violent crime rate in a racially diverse, large scale study of Chicago neighborhoods. In a longitudinal study in Britain, neighborhood cohesion has been negatively associated with perceptions of disorder (vagrancy, litter, vandalism) and overall crime rate (Markowitz, Bellair, Liska, & Jianhong, 2001), however neither of these studies specifically reference adolescents' delinquent behavior. However, looking specifically at African American and Latino boys and their adult caregivers in a poor urban community, Tolan, Gorman-Smith and Henry (2003) highlight the role of "neighborliness" (the extent to which people see themselves as able to depend on their community) in indirectly compensating for some of the risk of gang membership and violent behavior associated with low-income, high crime neighborhoods in a longitudinal study of 5th to 7th grade inner city boys followed for six years. Kohen, Leventhal, Dahinten, and McIntosh (2008) found an indirect association of neighborhood cohesion with behavior problems through family functioning and parental

behaviors. Further, Sampson et al. (1997) found that perceptions of neighborhood cohesion along with feelings of trust were robust predictors of decreased instances of delinquency.

Family Processes

Systems perspectives provide for the consideration of protective processes that include both family and dyadic level characteristics. These subsystems within greater systems can provide important connections for adolescents to their respective family systems (Minuchin, 1969; Nichols, 2010). Much of the child focused literature examines parent-child dyadic subsystems as the “family” variable (Smith & Krohn, 1995). Whitchurch and Constantine (1993) identify this as stemming from the increased methodological problems when quantifying interaction in groups. While important to consider adolescents’ perspectives on relationships with specific family members (e.g., parents), the characteristics of the greater family system can also help researchers describe important associations with adolescents’ well-being (Henry, 1994; Henry, Robinson, Neal, & Huey, 2006; Henry, Sager, & Plunkett, 1996). These two levels of family processes (overall family system and parent-child dyad) can provide protective processes when adolescents perceive connectedness.

Family cohesion. Moos and Moos (1994) describe family cohesion as the aspect of family dynamics concerned with the amount of assistance that family members provide one another as well as the amount of commitment to family members. Family cohesion is an important relational dimension to family systems and subsequently associates with adolescents’ well-being (Moos, 1990; Olson, 1986; Olson, Gorall, & Walsh, 2003; Olson, Russell, & Sprenkle, 1983). Family cohesion serves as an indicator

of the amount of emotional attachment or bonding that family members feel and the degree to which individual members feel that they can express their own autonomy (Maynard & Olson, 1987; Moos & Moos, 1994; Olson, 1986). Barber and Buehler (1996) define family cohesion as support, caring, helpfulness as well as that emotional connection. While Olson et al. (2003) present a curvilinear view of cohesion, the concept of family cohesion used in this study eschews this conceptualization in favor of cohesion as a separate and distinct construct from enmeshment (Barber & Buehler, 1996; Moos & Moos, 1994).

This linear association between family cohesion as a protective process and adolescents' well-being has been demonstrated in the related literature. Cashwell and Vacc (1996), in a small sample of adolescents between the ages of 12 and 16, found that family cohesion was indirectly associated with adolescent delinquency through deviant peer involvement. In a small study in Israel of nuclear families and their children aged 10-17, Yahav (2002) found that family cohesion was negatively associated with externalizing symptoms such as delinquency and aggression.

In consideration of the importance of family cohesion, other researchers found a similar link between low family cohesion and externalizing symptoms such as ADHD (Higgins, McCabe, & Ricciardelli, 2003; Niederhofer et al., 2003), along with internalizing symptoms such as loneliness in girls (Johnson, LaVoie, & Mahoney, 2001), depression in adolescents (Carbonell et al., 2002) and homesickness (Kazantzis & Flett, 1998). Also, family cohesion has been negatively correlated with identity diffusion (Willemsen & Waterman, 1991) or the existence of a well-formed and established adolescents' identity, and identity exploration, and commitment (Mullis, Brailsford, &

Mullis, 2003). Johnson, Smith, and Nelson (2003) found that higher levels of cohesion are associated with greater levels of social interest in adolescents.

Whereas the association between family cohesion and selected individual characteristics has been well investigated, additional research is needed to examine how family cohesion explains adolescents' reports of their delinquent behavior. Research on the moderating potential of family cohesion in association with risk contexts and adolescents' delinquent behaviors is less common.

Parental support. When considering the protective nature of systems, one must take into account the dyadic relationships, or subsystems, within systems. The saliencies of parent-child interactions have been well-documented as researchers have sought to understand adolescents' qualities (Jaramillo & Wasserman, 1996). For some authors, these highly organized social networks (e.g., friends and family) seem to mitigate the association of risky neighborhoods to the development of behavior problems like crime and delinquency in adolescence (Sampson & Groves, 1989). To understand behavior problems, Patterson, Reid, and Dishion (1998) found that social variables, such as parenting, interact with risky neighborhoods.

Parental support is the parental variable most closely associated with aspects of overall family system dynamics such as cohesion (Henry et al., 2006). While family cohesion reflects a quality or perception of families' connections and availability to each other (Gorman-Smith, Henry, & Tolan, 2004), parental support involves the communication of connection, warmth, acceptance, approval, and availability, from parents to adolescents (Barber, Stolz, & Olsen, 2005). This narrowed focus on connectedness within the context of dyadic relationships adds to our understanding of

how families relate as parents seek to provide nurturance, warmth, and positive sentiments (Ellis, Thomas, & Rollins, 1976).

Parental support has been consistently positively associated with aspects of adolescents' well-being (Lamborn & Felbab, 2003; Peterson & Rollins, 1987). Parental support is positively associated with higher self-esteem (Hoffman, Levy-Shiff, & Ushpiz, 1988) and improved academic performance (Bean, Bush, McKenry, & Wilson, 2003; Dubow, Tisak, Causey, Hryshko, & Reid, 1991; Dunn, Putallaz, Sheppard, & Lindstrom, 1987; S. Kim, Brody, & Murry, 2003). Parental support is inversely associated with emotional problems and psychological distress (Demaray, Malecki, Davidson, Hodgson, & Rebus, 2005; Helsen & Vollebergh, 2000; Ystgaard, Tambs, & Dalgard, 1999) such as depression (Cheng, 1997; Colarossi & Eccles, 2003; Licitra-Kleckler & Waas, 1993; Mounts, 2004; Newman, Newman, Griffen, O'Connor, & Spas, 2007; Zimmerman, Ramirez-Valles, Zapert, & Maton, 2000).

In a longitudinal study of 7th and 8th graders, Rueger, Malecki, and Demaray (2010) found that perceptions of parental support were negatively associated with adolescents' reports of depression and positively associated with self-esteem. Dumont and Provost (1999), in a small study of 8th grade and 11th grade French adolescents, found that vulnerable adolescents were more likely to engage in delinquent behaviors. A large, national study of 10th graders found that parental support was negatively associated with delinquent behaviors (Parker & Benson, 2004). Bean, Barber, and Crane (2006) note that similar associations were observed when parenting behaviors were obtained through parents' reports (Garber, Robinson, & Valentiner, 1997; S. Kim et al., 2003; Smith, Lizotte, Thornberry, & Krohn, 1995) or adolescents' reports (Bean et al., 2003; Demaray,

Malecki, Rueger, Brown, & Summers, 2009; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Mounts, 2004).

Consideration of both gender of parents and gender of adolescents is also important when looking at parental support. Social roles and expectations may differ significantly depending on parents' gender. Much research on parenting variables, such as parental support, has focused on maternal parenting behaviors. This bias leaves out a crucial understanding of the associations between fathers' parenting and adolescents' well-being (Bean et al., 2003). The prevalence of maternal parenting reports may be a function of the accessibility of maternal figures and the sometimes primary parenting role they may play in young children's lives. The relationship of fathers with adolescents has received increasing attention in the past two decades (Day et al., 2005; Hofferth et al., 2007; Lamb & Tamis-LeMonda, 2004; Marsiglio, Amato, Day, & Lamb, 2000). Using an African American adolescent sample, fathers' rather than mothers' support was directly associated with delinquent behavior for adolescent boys and girls (Bean et al., 2006). Both fathers and mothers have unique and complex roles in the family. While fathers do spend proportionally less time than mothers with their children, the relative influences of mothers are shaped by that constancy and by the relative novelty for fathers (Lamb & Tamis-LeMonda, 2004). Based on these findings and the recommendations for more research into African American (Roopnarine, 2004) and Latino (Cabrera & Coll, 2004) fathers, specific investigation into the distinctions between mothers' and fathers' support, especially in African American and Latino families, could produce valuable understanding (Bean et al., 2006).

While some research has focused on support as a parental variable of interest, most research concerning adolescent delinquency has utilized monitoring as the primary protective process. Farrington (2009) emphasize monitoring as a protective factor for risk contexts for adolescent delinquency such as abuse, inter-parental conflict, parental separation, single parent status, antisocial parents and large families. Barber et al (2005), in their multi-national study, found that parental support fostered social initiative and lower depression, but that monitoring was uniquely associated with lower antisocial behavior, which Farrington (2009) describes broadly as conduct disorder, aggression, and delinquency. While some studies identify parental behaviors such as monitoring having a direct effect on delinquency (Cota-Robles & Gamble, 2006; Jacobson & Crockett, 2000), others look at monitoring as moderating the association between risk contexts such as antisocial friends and delinquency (Laird et al., 2008).

However, Stattin and Kerr (2000) emphasize how monitoring requires parental knowledge of their children's activities, friends, and behaviors which emerges through children's disclosures that occur within a context where youth perceive a strong sense of connectedness to their parents. Interestingly, parental support has been identified as a moderator of the association between parental control (e.g., monitoring) and adolescents' delinquent activities (Keijsers, Frijns, Branje, & Meeus, 2009). While these studies make the case for supervision and delinquency, the potential of support (and other forms of connectedness such as family cohesion & neighborhood cohesion) to explain variation in delinquent behavior among youth, especially in a sample with an overrepresentation of African American and Hispanic youth, has not been sufficiently studied either as a direct variable or as a moderator. Given the prominence of connectedness in fostering resilience

among youth in risky contexts, connectedness as a protective process for adolescents' in risky contexts needs further research.

Aspects of Connectedness as Moderators

Adolescents who perceive aspects of connectedness within their neighborhoods or families may gain protection against the heightened risk of delinquent behavior associated with contextual risks. That is, connectedness may moderate the association of contextual risk and adolescents' delinquent behavior. For example, while collective efficacy--a form of neighborhood cohesion--appears to afford protection against adult criminal activity for adults who experience neighborhood disadvantage (Sampson et al., 1997), it is possible that neighborhood cohesion may moderate the association of contextual risk to adolescents' delinquent behavior. In a study of 1st and 2nd grade racially diverse children, Silk, Sessa, Sheffield Morris, Steinberg, and Avenevoli (2004) found that children's perceptions of cohesion buffered the association between hostile parenting and aggressive and acting out behavior. Although Werner and Silbereisen (2003) found that the association between family cohesion and German adolescents' delinquent behavior was mediated by peer delinquency, the moderating potential of family cohesion has not received sufficient consideration. Systems perspectives provide theoretical support for the idea that adolescents who perceive a strong sense of connectedness with their overall family system through cohesion might be afforded protection against the increased risk of delinquent behavior associated with neighborhood risk and peer delinquent behavior. Studies investigating parental support as a moderator between contextual risk and adolescents' delinquent behavior are scarce.

Demographic Considerations

Overt conduct problems are usually less frequent (Crick & Grotpeter, 1995) and develop later (Silverthorn & Frick, 1999) for girls than for boys. Further, adolescent boys enter the juvenile justice system at two to four times the rate of adolescent girls and report higher rates of delinquent behaviors (Farrington, 2009). However, scholars warn against concluding that boys are at greater risk for delinquent behavior than girls because the overall scholarship on gender differences in adolescents is replete with ambiguous findings (Hartman, Turner, Daigle, Exum, & Cullen, 2009). While such differences may be attributed to methodological differences such as strategies of sampling, measurement, or analysis (Hartman et al., 2009) adolescents' gender merits inclusion in research examining contextual risks and connectedness in association with delinquent behavior.

Another possibility is that adolescents' gender moderates the association of (a) contextual risk and delinquent behavior, (b) aspects of connectedness and delinquent behavior, and (c) the interaction of contextual risk and aspects of connectedness. While many large scale longitudinal studies have found gender differences in levels of exposure to risks and subsequent differences in adolescents' reports of delinquent behaviors, researchers have noted little support for gender differences in the strength of associations between protective and risk factors and delinquency (Fagan, Van Horn, Hawkins, & Arthur, 2007; Moffitt, Caspi, Rutter, & Silva, 2001). The possibility of moderation is supported by Werner and Silbereisen's (2003) finding that for girls, but not boys, family cohesion and closeness to fathers was associated with peer delinquency.

In addition to gender, low socioeconomic (SES) conditions are a generally accepted risk factor for negative adolescent outcomes (Braveman et al., 2005; Brooks-

Gunn, Linver, & Fauth, 2005; Mayer & Jencks, 1989; Schonberg & Shaw, 2007).

However, evidence does not clearly support SES as a sole predictor of adolescents' delinquent behavior (Dodge & Pettit, 1994; Farrington, 2009; P. Tolan, 1988). Since this study purposefully sampled from youth at risk for economic disadvantage based upon targeting Latino and African American schools and organizations, SES is included as a control variable rather than a primary focus in this study.

Problem Statement

The purpose of this study is address the need for further research to understand how connectedness within neighborhoods, families, and parents directly associate with, or moderate adolescents' reports of delinquent behaviors in the risky contexts of neighborhood risk and peers' delinquent behaviors.

Conceptual Hypotheses

Hypothesis 1. Adolescents' perceptions of risk contexts (neighborhood risk and peers' delinquent behavior) will be positively associated with adolescents' reports of delinquent behavior.

Hypothesis 1a. Adolescents' perceptions of neighborhood risk will be positively associated with adolescents' reports of delinquent behavior.

Hypothesis 1b. Adolescents' perceptions of peers' delinquent behavior will be positively associated with self-reported adolescents' delinquent behavior.

Hypothesis 2. Adolescents' perceptions of connectedness in their neighborhood and family contexts will be negatively associated with adolescents' reports of delinquent behavior.

Hypothesis 2a. Adolescents' perceptions of neighborhood cohesion will be negatively associated with adolescents' reports of delinquent behavior.

Hypothesis 2b. Adolescents' perceptions of family cohesion will be negatively associated with adolescents' reports of delinquent behavior.

Hypothesis 2c. Adolescents' perceptions of mothers' support will be negatively associated with adolescents' reports of delinquent behavior.

Hypothesis 2d. Adolescents' perceptions of fathers' support will be negatively associated with adolescents' reports of delinquent behavior.

Hypothesis 3. Adolescents' perceptions of connectedness in their neighborhood and family contexts will attenuate the association between risk contexts and adolescents' reports of delinquent behavior.

Hypothesis 3a. At high levels of perceived connectedness (neighborhood cohesion, family cohesion, mothers' support and fathers' support) the association between perceptions of contextual risks (neighborhood risk and peers' delinquent behavior) and self-reported adolescents' delinquent behavior will be attenuated.

Hypothesis 3b. At low levels of perceived connectedness (neighborhood cohesion, family cohesion, mothers' support and fathers' support) the association between perceptions of contextual risks (neighborhood risk and peers' delinquent behavior) and adolescents' reports of delinquent behavior will be strengthened.

Because of the possibility that aspects of connectedness may moderate the associations between other connectedness variables and adolescents' reports of delinquent

behavior, all possible combinations of two and 3-way moderators will be examined. Specific hypotheses were not established, due to the limited research examining these possible associations.

Adolescents' gender will be examined as a possible predictor of adolescents' delinquent behavior and as a moderator of the associations between the risk and connectedness variables and delinquent behavior. In addition, socioeconomic status will be examined as a control variable.

Conceptual Definitions

The following definitions are included as a guide to the overall concepts. These are important theoretical concepts and variables used in this study.

Cohesion: The aspect of system dynamics concerned with the amount of assistance or help that family or group members provide one another as well as the amount of commitment to other members (Moos & Moos, 1994).

Connectedness: Connectedness is a balance of unity, support, and working together within a system, while still providing autonomy for individuals (Walsh, 2006). Barber and Schluterman (2008) describe connectedness as a tie or bond between a child and significant others. This concept of connectedness links an individual to greater systems levels (Carter & McGoldrick, 2004).

Delinquent behavior: Delinquent behaviors are most often described using legal definitions that involve specific behavior connected to criminal law (Farrington et al., 2004). However, a broader definition of delinquency includes behaviors that in certain contexts might not be an illegal offense but are certainly connected to delinquent activity (Stattin & Kerr, 2000). Examples of delinquent behaviors can

include school truancy, lying, and disobedience to parents and other authority figures. Other delinquent behaviors include illegal-unlawful behavior, carrying weapons, selling drugs, or getting arrested.

Family resilience perspectives: Family resilience perspectives place an emphasis on the role that family relationships may play in buffering some of the risk that adolescents experience (Walsh, 2006).

Moderator: A variable that alters the strength of the association between the predictor and criterion variable (Baron & Kenny, 1986). For example, family cohesion is hypothesized to reduce the strength of the association between peers' delinquent behaviors and adolescents' delinquent behaviors.

Parental support: Parental support involves the communication of connection, warmth, acceptance, approval, and availability, from parents to adolescents (Henry, 1994; Peterson, 2005).

Protective processes: Protective processes are environments, qualities, or relationships which increase the probability of positive outcomes or moderate the association between risk contexts for individuals and groups (Kirby & Fraser, 1997; Masten et al., 2009; Rutter, 1987; Walsh, 2006). Process implies that the quality or characteristic is dynamic in relation to individuals' well-being (Walsh, 2006).

Risk contexts: Environments, qualities, or relationships which increase the probability of negative outcomes for individuals and groups (Fraser, 1997).

Systems perspectives: Based on the work of general systems theorists, such as von Bertalanffy in biology, Norbert Wiener's cybernetics and control systems, and the work of the Bateson group as they applied general systems ideas to families

(Hanson, 1995; Whitchurch & Constantine, 1993; White & Klein, 2002), systems perspectives are a group of theoretical perspectives that shift focus from individuals' qualities to understanding individuals within the context of their interactions with family, peers, neighborhood, etc. (Bailey, 1994).

Method

Procedure

This study is part of a larger project funded by the Office of Juvenile Justice and Delinquency Prevention (OJJDP) examining neighborhood and family contexts and adolescents' delinquent behavior, involving data collection in three states. Data were collected using a self-report questionnaire of selected demographic variables along with other variables assessing individual, family and community. The research project targeted schools and other community organizations in areas with large Latino and African American populations. The research teams made contacts with identified high schools and community organizations, obtained agreements to participate from associated officials, and arranged for distributing packets and collecting data either at the school/organization or by sending a questionnaire home with the adolescent.

In California, data were collected in 9th grade classes at two separate high schools in Los Angeles. Researchers sent packets (i.e., parental consent, father survey, and father consent) home with the students. The students were directed to return signed parental consent forms back to the teachers. The researchers returned 1-2 weeks later (depending on the school), collected the consent forms, and then distributed adolescent assent forms and surveys to students who wished to participate and had signed consent forms. Students who did not participate were given an alternative assignment while data collection was

taking place. Collection occurred during a regular class designated by the school. Researchers (mostly bilingual) walked around the class to assist students if they had questions. Students were entered into a drawing for one \$10 gift card for each class where data collection took place.

For the North Carolina collection, 9th and 10th graders at three different schools were invited to participate in the study by the research team during a homeroom or other designated class. Adolescents were given a packet with consent forms and the survey to take home. Adolescents were instructed to take the packet home, have their parent or guardian sign the consent. Then, they could complete the survey and return it to the designated official at their school. Teachers were provided with an instruction packet and distributed nominal amount gift cards when the students returned the surveys and consent forms.

In Oklahoma, collection occurred at three different schools. At two of the schools, 9th and 10th grade students were given packets containing consent forms with instructions to return the signed parental consent forms and adolescent assent forms to the homeroom teachers. The research team returned one week later and administered the survey in a group location with those adolescents who returned consent and assent forms. The third school provided a large room during two separate enrollment days. Parents completed consent forms and participants completed the survey at that time. An additional collection was held at a religious organization. A researcher distributed a packet with parental consent and adolescent assent forms. The researcher returned a week later and administered the survey to those who had returned the consent and assent forms.

Participation was voluntary, and adolescents who chose not to participate were provided with other appropriate activities. The entire survey contained five pages and took most adolescents approximately 50 minutes to complete. Eligible adolescents were placed in a drawing to win a \$10 Walmart or Target gift card. Chances of winning were 1 in 20.

Participants

A purposive sampling procedure was utilized for this study in order to specifically oversample African American and Latino populations and to target the desired population of 9th and 10th grade students. Among the 688 adolescent participants, 46.2% were adolescent boys and 53.8% were adolescent girls. The mean age was 14.9 years. The grade distribution was 68.9% in the 9th grade and 31.1% in the 10th grade. Most adolescents self identified as African American/Black (23.7%) or Hispanic/Latino (53.4%). Other ethnicities included Asian (2%), Native American (.9%), Mixed Descent (5.6%) and European American (14.3%). To examine for differences in the sample, ANOVAs will be performed to ascertain if there are significant differences between states of administration along with examining for differences between the sample and those participants selected out because of missing data.

Measurement

June 1st, 2010 was established as the cut-off date for data collection for this study. See Appendix B for a summary of the specific scales or subscales proposed for the current study.

Socioeconomic status and general demographics. For the purposes of this study, the socioeconomic status variable was comprised of a combination of educational

achievement for mother and father and neighborhood wealth. Other demographic questions included gender, age, race/ethnicity, and grade.

Adolescents' delinquent behaviors. A 17-item Likert-type scale, created for this study, was used to measure adolescents' perceptions of delinquent behaviors. Items included (but were not limited to) commonly used questions about how often adolescents engaged in delinquent behaviors, such as truancy, illegal/unethical behaviors, gang involvement, selling drugs, stealing, carrying weapons, and involvement with police or being arrested (Farrington, 2009). Response choices follow: 0 = *never*, 1 = *once*, 2 = *a few times*, and 3 = *many times*. Mean scores will be computed. Higher scores indicate that the adolescents report greater involvement in risky behaviors.

Neighborhood risk. Adolescents' perceptions of neighborhood risk was measured with a modified scale (Bamaca, Umana-Taylor, Shin, & Alfaro, 2005; Supple et al., 2006) containing 12 Likert-type items. Two items were added and the wording on a few items was improved for this present study. Assessed risks included (but were not limited to) poverty, unemployment, crime, violence, drug/alcohol use, and little value placed on education. A sample item follows: "I have seen people do illegal things." Response choices follow: 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly agree*. Mean scores will be computed. Higher scores indicate a greater amount of perceived neighborhood risk. Previous studies using adolescents' reports with the 10-item scale (Bamaca et al., 2005; Henry et al., 2008; Supple et al., 2006) found Cronbach's alphas ranging from .84 to .86.

Peers' delinquent behaviors. Adolescents' perceptions of peers' delinquent behaviors were evaluated with a 7-item Likert-type scale consisting of questions

reflecting the adolescents' friends' delinquent behaviors (e.g., threats of violence, gang involvement, substance use and truancy) within the past six months. The scale was adapted from a similar scale created by the Center for Urban Affairs and Policy Research (1995). Responses were elicited on the following scale: 0 = *never*, 1 = *sometimes*, 2 = *frequently*, 3 = *very frequently*, 4 = *always*. Mean scores will be computed for this variable with higher scores indicating greater amounts of peer delinquent behavior perceived by adolescents.

Neighborhood social cohesion. A 3-item Likert-type scale, created for this study, measured adolescents' perceptions of neighborhood social cohesion. The three items asked adolescents whether people in their neighborhood know each other, care about the community, and get along well. A sample item was: "Most people care about their community." Response choices follow: 1= strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Mean scores will be computed for this variable. Higher scores on this scale indicate greater perceived neighborhood social cohesion. Plunkett (2010) obtained reliability in a adolescent sample ($n = 346$) for this 3 item measure of .72. Validity was determined by correlation with neighborhood risks ($r = -.39$, $p < .001$), hostility ($r = -.20$, $p < .001$), violent intentions ($r = -.13$, $p < .01$), and likelihood of violence and delinquency ($r = -.11$, $p < .05$; Plunkett, 2010).

Family cohesion. Adolescents' perceptions of family cohesion was measured with the 9-item cohesion subscale of the Family Environment Scale (Moos & Moos, 1994). Sample items were worded in positive and negative formats. Examples include: (a) "Family members really help and support each other" and (b) "There is very little group spirit in our family" (reverse coded). Responses were provided on the following

Likert-type scale: 1 = *not true*, 2 = *generally not true*, 3 = *generally true* and 4 = *true*.

Moos and Moos (1994) reported Cronbach's alphas ranging from .72 to .86. Higher scores on this subscale indicate greater perceived cohesion.

Parental support. The 4-item support subscale from the Parent Behavior Measure (Caldwell, Beutler, Anross, & Claytonsilver, 2006; Henry & Peterson, 1995; Henry, Wilson, & Peterson, 1989; Peterson, Rollins, & Thomas, 1985) was used to measure adolescents' perceptions of the parental behavior of support. The items assess the extent to which adolescents perceive that their mothers and/or fathers love and approve of them, as well as whether their parents are available. The scale items were selected based on previous studies identifying the highest loading on the factor identified as support (Peterson et al., 1985). Scale items came from a factor analytic study examining the Heilbrun (1964, 1973) and Cornell measures (Bronfenbrenner, 1961; Devereux, Bronfenbrenner, & Rodgers, 1969) of parental support (Ellis et al., 1976). The scale items selected for the parental support measure were part of the Rollins and Thomas Parent Behavior Inventory, an 80 item measure which consisted of salient items from Schaefer's Parent Behavior Inventory (Peterson et al., 1985; Schaefer, 1959, 1965).

Adolescents' responded to each item providing perceptions of the parental behaviors of support for their primary mother and father figure. Responses were provided on a four-point Likert-type scale: 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly agree*. Mean scores will be computed for the adolescents' responses for mother and father figure separately. Cronbach's alphas for immigrant Latino families (Bamaca et al., 2005) and Mexican American families (Plunkett, Behnke, Sands, & Choi, 2008) ranged from

.78 to .90. Henry et al. (2008) found alphas of .82 for mothers' support and .86 for fathers' support with a Latino sample from immigrant families.

Proposed Analyses

The analytic technique of multiple regression allows the researcher to study how adolescents' reports of delinquent behavior associates with, and is a function of, peer delinquent behavior and connectedness. Cohen, Cohen, West, and Aiken (2003) propose multiple regression as a beneficial analytic tool that provides both measures of significance and an understanding of effect sizes. Consideration of not just the existence of an association between multiple variables, but also the amount of variance accounted for by each variable helps the researcher better portray the strength of the associations. Multiple regression as an analytic technique fits the exploratory nature of this present study (Gefen, Straub, & Boudreau, 2000). Although associations are hypothesized, and some literature describes specific associations between certain variables, this particular combination of variables has not received much attention.

This study will utilize hierarchical linear multiple regression analyses as the statistical analysis. The regressions will examine and then control for the effects of SES before examining the main effects of gender, perceptions of peers' delinquent behaviors, perceptions of neighborhood risk and neighborhood cohesion, perceptions of family cohesion and perceptions of parental support behaviors on self-reports of adolescents' delinquent behavior. Also, the hierarchical regression will allow the researcher to examine potential moderating effects of connectedness (neighborhood cohesion, family cohesion, and parental support) on the association between dangerous contexts

(perceptions of neighborhood risk and peer delinquent behavior) and self-reported adolescent delinquent behavior.

Means and standard deviations (see Table 1), along with skewness and kurtosis will be examined. While some skew can be expected in variables of a psychological nature (Micceri, 1989), any variable that is highly skewed ($\text{skew} > 3.0$) will be transformed using the square root transformation (Cohen et al., 2003). The transformed variable will then be used in all subsequent analyses. Gender will be dummy coded (1 = *girls* and 0 = *boys*) to allow for inclusion in the multiple regression equations.

Before performing the hierarchical linear multiple regression, bivariate correlations will be obtained to examine the associations among the predictor and criterion variables. All other predictor and moderator variables, with the exception of the dichotomous variable of gender, will be centered by subtracting the mean from each participants' score on the variables (Cohen et al., 2003). Interaction terms will be created for all possible two and three-way interactions terms involving adolescents' gender, adolescent risks, and forms of connectedness to be entered into the hierarchical multiple regression analyses to test for moderators. As a specific example, a two-way interaction for peer delinquency by fathers' support (PD x FS) and a three-way interaction for gender by peer delinquency by fathers' support 3-way interaction (Gender x PD x FS) will be created.

To better ascertain the associations between risk contexts and protective processes, two separate hierarchical multiple regression equations will be examined to test the neighborhood risk model and peer delinquent behavior model. This will allow the researcher to examine how the supportive processes associate with the criterion variable

when taking into consideration the risk contexts of peer delinquency or neighborhood risk separately.

In Step 1 of the hierarchical linear multiple regressions, the control variable of SES will be entered to account for any variance associated with SES in order to understand how the predictor variables might associate with adolescents' delinquent behavior beyond the context of SES. Perceptions of the risk variable (neighborhood risk or peers' delinquent behavior) along with gender, and adolescents' perceptions of mother support, father support, neighborhood cohesion and family cohesion will be added in Step 2 of both the neighborhood risk and the peer delinquency model. Then, for Step 3, all possible 2-way interactions will be added to the equation. Finally, in Step 4, including all possible 3-ways to see which interaction terms are significant.

Each of the 2-way and 3-way interactions that are significant in the initial models will be included in their respective multiple regression models. Non-significant 2-way interactions will be retained in the final models when the 2-way interactions are present within any significant 3 way interactions (Aiken & West, 1991). To determine the contributions of each block of variables, at each step any significant changes in the amount of variance accounted for will be analyzed.

Jaccard, Turrisi, and Wan (1990) provide the following steps for utilizing hierarchical regression to analyze moderators. First, the predictor and moderator variables are centered. Second, the slopes are calculated at two levels of the centered moderator. The levels of the centered moderator are obtained by using one standard deviation above the mean and one standard deviation below the mean of the moderator variable as cutoff points. Next, the statistical significance of the slopes was obtained by calculating the

standard error and the *t*-score for each of the slopes (Jaccard et al., 1990). Interaction terms are then graphed based on high and low values (+1 and -1 *SD*). Simple slopes analyses are used to determine whether plotted regression lines are statistically significant in difference from zero at different levels of the moderator (Aiken & West, 1991; Dawson & Richter, 2006; Jaccard et al., 1990).

Dawson and Richter (2006) extend Aiken and West's (1991) approach by advocating the use of a significance test for assessing slope differences in 3-way interactions. Dawson (2010) provides formula spreadsheets that were utilized for post-hoc probing of the significant 2-way and 3-way interactions obtained in each of the final regression models. Dawson and Richter (2006) recommend a four step procedure for assessing slope differences. First, generic formulas for simple slopes are calculated for the association of two variables at high and low levels of the two other variables. This is similar to the recommendation of Aiken and West (1991) for assessing 2-way interactions. Then, the difference between two pairs of slopes is calculated. Thirdly, the standard error of the difference of the pairs of slopes is determined. The final step is to test whether the ratio of the difference between the pairs (of slopes) and the standard error of the difference between the two pairs differs from zero and is subsequently significant (Dawson & Richter, 2006).

Limitations of Proposed Study

One limitation of this study is the use of adolescents' perception of risk and protective contexts. By not using objective measures of risk or protection, there may be questions about the validity of the adolescents' perceptions. Loeber and Stouthamer-Loeber (1986) highlight the possibility of an inflated likelihood of significant finding by

solely using adolescents' perceptions. As discussed earlier, research has highlighted the connection between adolescents' subjective perceptions of neighborhood, family and parental variables and objective qualities (Plunkett et al., 2007; Stiffman et al., 1999). This research and systems perspectives provide a strong case for the use of adolescents' perception as their cognitive appraisals of environment shape their experience and subsequently associate with adolescents' qualities and well-being (Bronfenbrenner, 1986; Henry et al., 2008; Ogbu, 1981). Because both predictor and criterion variables are collected from the same source, this increases the risk for shared method variance (Leventhal et al., 2009). Data collected from additional respondents could provide additional insight into understanding the protective and risk contexts.

Because this study utilizes a correlational, cross-sectional design, the researcher is unable to draw certain conclusions about associations between variables. Because the data is collected from a single population at one point, the effect of time and history is not controlled (Gay & Airasian). A correlational study looks at associations between variables, but the direction or causality of associations between variables cannot be ascertained. The researchers also utilized a convenience sample through purposive sampling, which limits generalizability of the findings to other non-specific populations (Gay & Airasian, 2000). While there were only slight differences in the procedure for administering the surveys, this is also a limitation. Although these are certainly limitations of the proposed study, this study allows the researcher to identify and target specific populations of adolescents in higher risk environments. The results of this research can also inform theory development by providing initial descriptions of

associations between variables and subsequently guide future longitudinal studies investigating causal associations with random samples.

The possibility of multicollinearity also exists in this study. Many of the system variables are closely linked through theory (e.g., parental behaviors and family cohesion) (Becvar & Becvar, 2003; Carter & McGoldrick, 2004; Lamborn et al., 1991; Whitchurch & Constantine, 1993) and some variables (e.g., mothers' support and fathers' support) may have overlapping associations with adolescents' well-being. Peterson et al. (1985) specifically address this problem with parental behavior variables by utilizing separate regression equations for mothers and fathers. After assessing for multicollinearity, the researcher may utilize this method.

Another limitation of this study is the use of scales created specifically for the broader project which do not have previous use to provide estimates of reliability. This study can add to the field by providing reliability estimates for the newly created measures.

Because this study identifies specific, hypothesized associations between small amounts of variables, there is also a possibility that visible associations between variables may be the result of some other, unidentified variable. Multiple regression as an analytic strategy can identify the variance accounted for by each variable, chosen based on a theoretical model (Cohen et al., 2003). Subsequently, only associations between the examined variables can be inferred.

Despite these limitations, the present study will benefit the field by examining associations between risk contexts and connectedness as protective processes for adolescents' delinquent behavior. These associations can build on previous research into

resilience outcomes and provide specific linkages for investigation through future research. This study may also provide unique contributions to the field by examining potential moderating associations between neighborhood and peer risk contexts and neighborhood, family, and parental connectedness as a protective factor. This may serve to highlight a protective process of connectedness across multiple systemic contexts thereby developing theory and providing multiple intervention points for practitioners.

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APPENDIX B

QUESTIONNAIRES

Selected demographics questions and scales:

- What is your age?
- What is your grade?
- What is your gender?

In terms of an ethnicity/race, I am:

- 1. African American/Black
- 2. Asian
- 3. Caucasian/White
- 4. Hispanic/Latino
- 5. Native American
- 6. Other _____

SOCIOECONOMIC STATUS

How would you describe the wealth of most of the families in your neighborhood?

- 1=Very poor, 2=Poor, 3=Lower middle-class, 4=Middle-class, 5=Upper middle-class, 6=Upper-class/rich

Please use the scale to the right to answer the following.	1 = No schooling completed
What's the highest level of education your mother figure completed?	2 = Some elementary school (1 st -5 th grades)
What's the highest level of education your father figure completed?	3 = Some middle school (6 th -8 th grades)
	4 = Some high school (9 th -12 th grades)
	5 = High school graduate or equivalency (GED)
	6 = Some college but no degree
	7 = Associate (technical school) degree
	8 = Bachelor's degree
	9 = Master's degree
	10 = Professional school (medical, law) degree
	11 = Doctorate degree (Ph.D., Ed.D.)

PARENTAL SUPPORT

Mother Figure				Please answer how much you agree with each statement about your mother figure AND father figure.	Father Figure			
Strongly Disagree	Disagree	Agree	Strongly Agree	This parent...	Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4	Has made me feel that he/she would be there if I needed him/her.	1	2	3	4
1	2	3	4	Seems to approve of me and the things I do.	1	2	3	4
1	2	3	4	Tells me how much he/she loves me.	1	2	3	4
1	2	3	4	Says nice things about me.	1	2	3	4

Support Subscale of the Parent Behavior Measure (PBM; Henry, Wilson, & Peterson, 1989; Henry & Peterson, 1995; Peterson et al., 1985)

NEIGHBORHOOD RISKS & NEIGHBORHOOD COHESION

Please answer about your NEIGHBORHOOD...	Strongly Disagree	Disag ree	Agree	Strongly Agree
Many people cannot speak English very well.	1	2	3	4
Education is not valued.	1	2	3	4
Many families are poor.	1	2	3	4
Many adults are unemployed.	1	2	3	4
I have seen people do illegal things.	1	2	3	4
There is a lot of crime.	1	2	3	4
There is a lot of violence.	1	2	3	4
Many people use drugs or drink alcohol.	1	2	3	4
Illegal drugs are readily available.	1	2	3	4
There is a lot of racism/prejudice.	1	2	3	4
There is a lot of graffiti.	1	2	3	4
I feel unsafe.	1	2	3	4
Most people know their neighbors.	1	2	3	4
Most people care about their community.	1	2	3	4
Most people get along well.	1	2	3	4

Adolescents responded to a modified neighborhood scale (Supple et al., 2006).

PEERS' DELINQUENT BEHAVIORS

In the last SIX MONTHS, how often have FRIENDS you spend time with...	Neve r	Sometim es	Frequen tly	Very Frequentl y	Alway s
Damaged or destroyed property that did not belong to them?	0	1	2	3	4
Been involved in gang activities?	0	1	2	3	4
Hit or threatened to hit someone?	0	1	2	3	4
Skipped school?	0	1	2	3	4
Drank alcohol?	0	1	2	3	4
Used illegal drugs?	0	1	2	3	4
Got suspended or in trouble at school?	0	1	2	3	4

The scale was modified from one developed by the Center for Urban Affairs and Policy Research (1995).

ADOLESCENTS' DELINQUENT BEHAVIORS

In the last SIX MONTHS, how often have you...	Never	Once	A few times	Many times
Stayed out all night without your parents' permission.	0	1	2	3
Ditched or skipped school.	0	1	2	3
Trespassed somewhere.	0	1	2	3
Got into a place without paying admission (movie, game).	0	1	2	3
Stolen something.	0	1	2	3
Bought, used or sold something you knew was stolen.	0	1	2	3
Sold, dealt, hustled, or carried drugs.	0	1	2	3
Lied about your age to buy or do things?	0	1	2	3
Vandalized or damaged property (tagging, breaking windows).	0	1	2	3
Carried a weapon (chain, knife, gun).	0	1	2	3
Been in a car when someone was drinking and driving.	0	1	2	3
Mugged or robbed someone.	0	1	2	3
Been stopped or hassled by the police.	0	1	2	3
Been arrested.	0	1	2	3
Involved in a gang.	0	1	2	3
Used force (e.g., threats or fighting) to get things from people.	0	1	2	3
Dated someone who is at least three years older than you.	0	1	2	3

Adolescents' perceptions of delinquent behaviors were measured with a 17-item scale created for the Fathers Count project.

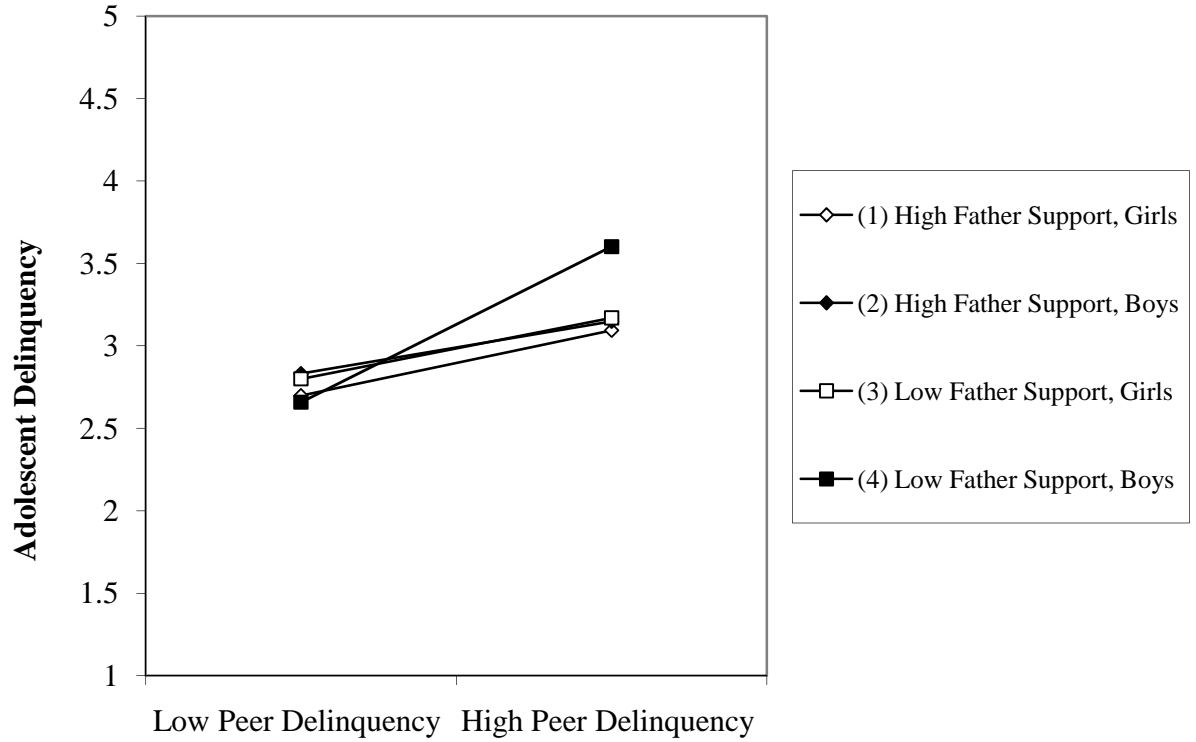
FAMILY COHESION

How true is each statement?	Not True	Generally Not True	Generally True	True
Family members really help and support one another.	1	2	3	4
We often seem to be killing/wasting time at home.	1	2	3	4
We put a lot of energy into what we do at home.	1	2	3	4
There is a feeling of togetherness in our family.	1	2	3	4
We rarely volunteer when something has to be done.	1	2	3	4
Family members really support each other.	1	2	3	4
There is very little group spirit in our family.	1	2	3	4
We really get along with each other.	1	2	3	4
There is plenty of time and attention for everyone in our family.	1	2	3	4

Family cohesion was assessed with a modified 9-item, Cohesion Subscale of the Family Environment Scale (FES; Moos & Moos, 1994).

APPENDIX C

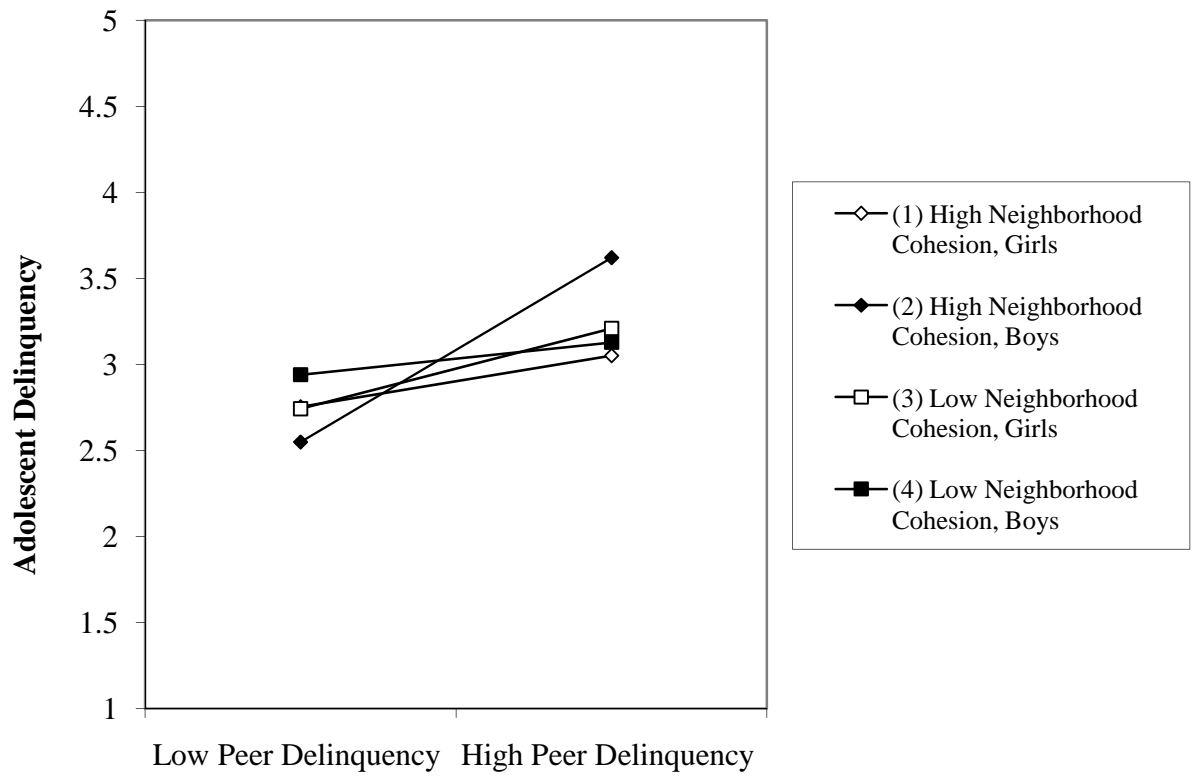
GRAPHS OF 3-WAY INTERACTIONS WITH SLOPE DIFFERENCES TABLES



Slope difference tests:

Pair of slopes	t-value for slope difference	p-value for slope difference
(1) and (2)	0.396	0.692
(1) and (3)	0.263	0.793
(1) and (4)	-3.781	0.000
(2) and (3)	-0.310	0.757
(2) and (4)	-2.478	0.013
(3) and (4)	-3.309	0.001

Figure 8. Slope differences for peer delinquency regression model. 3 way interactions including peer delinquency by fathers’ support by gender. Figure includes significance tests of slope differences (Dawson, 2010; Dawson & Richter, 2006).



Slope difference tests:

Pair of slopes	t-value for slope difference	p-value for slope difference
(1) and (2)	-4.149	0.000
(1) and (3)	-1.734	0.083
(1) and (4)	0.742	0.458
(2) and (3)	3.697	0.000
(2) and (4)	3.592	0.000
(3) and (4)	1.545	0.123

Figure 9. Slope differences for peer delinquency regression model. 3 way interactions including peer delinquency by neighborhood cohesion by gender. Figure includes significance tests of slope differences (Dawson, 2010; Dawson & Richter, 2006)

APPENDIX D

Institutional Review Board Approval Form

Note: The Fathers Count! Project was approved in September 2008 and was renewed in October 2009 and October 2010.

Oklahoma State University Institutional Review Board

Date: Monday, November 24, 2008
IRB Application No: HE0854
Proposal Title: Fathers Count!

Reviewed and Processed as: Full Board

Status Recommended by Reviewer(s): Approved Protocol Expires: 9/22/2009

Principal Investigator(s):
Carolyn Henry
233 HES
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

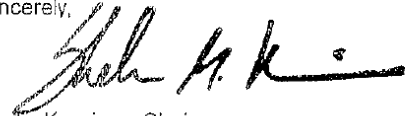
The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,



Shelia Kennison, Chair
Institutional Review Board

Oklahoma State University Institutional Review Board

Date Thursday, October 15, 2009 Protocol Expires: 10/14/2010
IRB Application No: HE0854
Proposal Title: Fathers Count!

Reviewed and Processed as: Full Board
Continuation

Status Recommended by Reviewer(s): **Approved**

Principal Investigator(s) :

Carolyn Henry
233 HES
Stillwater, OK 74078

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office **MUST** be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

- The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

Signature 
Stella Kennison, Chair, Institutional Review Board

Thursday, October 15, 2009
Date

Oklahoma State University Institutional Review Board

Date Friday, October 29, 2010 Protocol Expires: 10/28/2011
IRB Application No: HE0854
Proposal Title: Fathers Count!

Reviewed and Full Board
Processed as: **Continuation**

Status Recommended by Reviewer(s): **Approved**

Principal Investigator(s) :

Carolyn Henry
233 HES
Stillwater, OK 74078

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office **MUST** be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

- The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

Signature : 
Shelia Kennison, Chair, Institutional Review Board

Friday, October 29, 2010
Date

VITA

Canaan Crane

Candidate for the Degree of

Doctor of Philosophy

Thesis: PEER AND NEIGHBORHOOD RISK CONTEXTS, AND ADOLESCENTS' DELINQUENT BEHAVIORS: THE PROTECTIVE POTENTIAL OF FAMILY AND NEIGHBORHOOD CONNECTEDNESS

Major Field: Human Environmental Science

Area of Specialization: Human Development and Family Science

Biographical:

Personal Data: My research focus is on resilience among youth and families in high risk contexts through understanding contexts of connectedness (neighborhood, family) in relation to delinquent outcomes. In addition, a goal of my work is to apply research based approaches to promote resilience through intervention and prevention programming targeting youth in high risk settings.

Education: Graduated from Mustang High School, Mustang, Oklahoma in 1993; Received Bachelor of Arts Degree in Family Psychology from Oklahoma Baptist University, Shawnee, Oklahoma in May 1997; Received a Master of Science in Marriage and Family Therapy from Oklahoma Baptist University, Shawnee, Oklahoma in May 2000; Completed the requirements for the Doctor of Philosophy in Human Environmental Sciences at Oklahoma State University, Stillwater, Oklahoma in December, 2010.

Experience: Licensed Marriage and Family Therapist in State of Oklahoma, Assistant Professor of Psychology at Oklahoma Baptist University from 2007 to present, Private Practice in Marriage and Family Therapy from 2002 to present.

Professional Memberships: American Association of Marriage and Family Therapists, National Council on Family Relations

Name: Canaan R. Crane

Date of Degree: December, 2010

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: PEER AND NEIGHBORHOOD RISK CONTEXTS, AND
ADOLESCENTS' DELINQUENT BEHAVIORS: THE PROTECTIVE
POTENTIAL OF FAMILY AND NEIGHBORHOOD
CONNECTEDNESS

Pages in Study: 140

Candidate for the Degree of Doctor of Philosophy

Major Field: Human Environmental Sciences

Scope and Method of Study:

This study examined adolescents' perceptions of contextual risks (neighborhood risk or peer delinquent behavior) and connectedness (neighborhood cohesion, family cohesion, mothers' support, and fathers' support) in association with adolescents' reports of delinquent behavior in a predominately Latino and African American sample of 9th and 10th grade students. Data were collected from 688 adolescents (mean age of 14.9; 23.5% African American, 53.1% Latino, 14.2% Caucasian) in three states. Hierarchical multiple regression analyses were used to separately examine--for neighborhood risk and peer delinquent behavior--a theoretical model which posited that (a) risks would be positively associated, while aspects of connectedness would be negatively associated to adolescents' reports of delinquent behavior and (b) aspects of connectedness would moderate the association between the risk and adolescents' delinquent behavior-. Slope analysis was used to determine significance of moderating associations.

Findings and Conclusions:

In both the neighborhood risk and peer delinquent behavior models, risk was positively associated, while aspects of connectedness were negatively associated with adolescents' delinquent behavior. In the neighborhood risk model, mothers' support moderated the deleterious association with delinquent behavior, particularly for boys. For youth reporting high family cohesion, fathers' support afforded protection against delinquent behavior. In the peer delinquent behavior model, boys were at greater risk for delinquent behavior when reporting high peer delinquent behavior. The positive association of peer delinquent behavior and adolescent delinquent behavior was moderated by fathers' support x gender, showing the greatest protective potential for boys. In sum, connectedness at the parental and family levels buffers the risks of peer delinquent behavior and neighborhood risk for adolescents' delinquent behavior. Future research can include an investigation into additional domains of connectedness (e.g., school, peer) within various risk contexts. For prevention and intervention programming, the need for the inclusion of parents and family in treatment is highlighted.

ADVISER'S APPROVAL: Carolyn S. Henry, Ph.D.
