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FAMILY PROCESSES AS MODERATORS OF THE IMPACT OF PEER, SCHOOL, AND
NEIGHBORHOOD INFLUENCES ON ADOLESCENT AGGRESSION

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of
Philosophy at Virginia Commonwealth University.

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Abstract

FAMILY PROCESSES AS MODERATORS OF THE IMPACT OF PEER, SCHOOL, AND NEIGHBORHOOD INFLUENCES ON ADOLESCENT AGGRESSION

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

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Despite theoretical support for the role of the family in providing a foundation to protect youth against risks for aggression, there is little published literature examining a protective influence. This study examined family functioning and perceived parental messages about fighting and nonviolence as moderators of the relation between risk factors and adolescent aggression. The specific risk factors included affiliating with a delinquent group of peers, attending a school with norms that support aggression, and witnessing violence within the community. Secondary analyses were conducted on data collected from a high-risk sample of 537 adolescents in 2 cohorts from 18 schools. Adolescents completed measures of peer delinquent behavior and community violence exposure at the beginning and end of the sixth grade and at the end of the following two school years. An aggregated school-level measure of norms supporting aggression

was constructed from a random sample of students in each cohort and school. Family variables included adolescent reports of parental messages supporting fighting and nonviolence, and family functioning classes created through a latent profile analysis of adolescent and parent reports of family cohesion, family problem-solving, parental involvement, and positive parenting. Aggression was assessed by a composite of ratings from parents, teachers, and adolescents. Longitudinal analyses indicated that delinquent peer associations and witnessing violence were each related to changes in aggression over time. School norms supporting aggression was not significantly related to aggression. Parental messages supporting nonviolence and not supporting fighting, and good family functioning at the start of the sixth grade were each related to lower subsequent levels of aggression. Few protective effects of family processes were found. High family functioning reduced the risk associated with delinquent peer associations. Lower levels of parental support for fighting buffered the risk associated with witnessing violence, but not at higher levels of witnessing violence. Thus, whereas a foundation of positive parental messages and good family functioning was associated with lower aggression overall, these family factors generally did not serve to protect adolescents that experienced higher levels of risk. These findings suggest a need for further study of protective factors for adolescents in the face of peer, school, and community risk.

Family Processes as Moderators of the Impact of Peer, School, and Neighborhood Influences on Adolescent Aggression

Physically aggressive behavior in adolescents is a significant public health concern with both immediate and long-term effects. One of the more immediate consequences of youth aggression is physical harm. Violence-related injuries accounted for over 4,000 deaths and over 430,000 emergency room visits for youth aged 10 to 19 in 2008 (Centers for Disease Control and Prevention [CDC], 2011). In a survey of over 15,000 adolescents in grades six through ten in public and private schools, 23% of boys and 11% of girls reported having been injured in a fight during the past year (Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003). An additional negative consequence of aggressive behavior both in schools and in the community is a disruption in education. For instance, 5% of a nationally representative sample of high school students reported that they did not go to school at least once during the previous month because they felt unsafe either at school or on their way to or from school (CDC, 2010). Longer term effects of chronic aggression and victimization include social isolation, anxiety and depression (Olweus, 1993). Clearly, a better understanding of the factors that contribute to and prevent aggression during adolescence would have a wide range of benefits.

Adolescence is an important time to study risks for aggression, because it is a period during which many individuals are beginning to engage in problem behaviors (e.g., Maggs, Almeida & Galambos, 1995). Results from one accelerated longitudinal study that covered high-risk children aged 7 to 20 revealed that as participants got older, a larger proportion endorsed involvement in serious delinquency (Huizinga, 1995). The largest increase came when adolescents turned ages 13 and 14, and only about one third of participants at these ages were

classified as nondelinquent. Several nationally representative studies provide further evidence for the high prevalence of aggression in this age group. In a study of students in grades six through ten, for example, the percentage of students engaging in four or more fights per year was 13% of boys and 6% of girls (Nansel et al., 2003). Relatedly, a large number of students also report being bullied each year. Among students aged 12 to 18, for instance, 28% reported having been bullied in school during the past year. These rates were highest among middle school students, with 40% of sixth graders reporting having been victimized (U.S. Department of Education, 2011).

Early adolescence, in particular, is a period when there is an increased risk for involvement in problem behaviors (Huizinga, 1995; U.S. Department of Health and Human Services, 2001). One hypothesized explanation for this increased risk is that early adolescence is a time of transition, and is associated with a variety of changes to one's physical, social, and cognitive world (e.g., Galambos, Barker & Almeida, 2003). The transition from elementary to middle school is particularly tumultuous. Relative to elementary schools, middle schools are typically more difficult to manage and provide less individualized support, as they are larger, more anonymous, and more bureaucratic (Eccles et al., 1993). There are also typically more restrictions on behavior in middle school, which may cause frustration for adolescents who, developmentally, are striving to become more autonomous. Accordingly, the transition from elementary to middle school is associated with a number of negative outcomes. A longitudinal study of poor urban children found that across genders, races, and ethnicities, the transition was associated with an increase in daily hassles at school, and a decline in self-esteem, perceived social support, grade point average, class preparation, and participation in extracurricular

activities (Seidman, Allen, Aber, Mitchell, & Feinman, 1994). In addition to the personal and academic changes associated with the transition through middle school, students in this study increasingly reported that they perceived the values of their peers to be deviant. The risk from delinquent peers can be coupled with risks from the school environment itself, which may have unwritten social rules that reward rule-breaking or aggressive behavior (e.g., Cushing, Horner & Barrier, 2003). Finally, as early adolescents begin to experience an increase in autonomy and spend more time with friends out in their neighborhoods, there may also be an increased exposure to and influence of risks in the larger community (Crockett & Crouter, 1995).

At a time when adolescents are attempting to establish a self-identity and are experiencing a decline in positive self-image and perceived support, their contact with new peers, new social contexts, and different value systems makes them vulnerable to becoming involved in problem behaviors (Seidman et al., 1994). Because adolescents have the opportunity to select people and places to be around that coincide with their interests and values, their patterns of problem behaviors have the potential to become more stable lifestyles (Crockett & Crouter, 1995). Thus, early adolescence is a critical time for intervention, so that adolescents can be redirected toward a positive path that will lead to long-term benefits.

In an effort to reduce adolescent aggression and inform intervention research, researchers have worked to identify factors that contribute to the development of aggression. Risk factors for aggression have been identified at all levels of the ecological context, including the peer group, school, and community. In each of these contexts, there is the opportunity for adolescents to be exposed to values and norms that promote aggression. For students who affiliate with a delinquent group of peers, for example, there is an increased likelihood that values supporting

delinquency will be spread through socialization (Vitaro, Tremblay, Kerr, Pagani, & Bukowski, 1997). Alternatively, adolescents may behave aggressively in an attempt to gain status among their delinquent peers (Faris & Ennett, 2012). Similarly, students in schools in which there are norms supporting aggression may adopt these norms as their own, or simply behave aggressively to avoid negative social repercussions (Bernburg & Thorlindsson, 2005). Finally, adolescents living in communities where they are exposed to high rates of violence could develop misperceptions about the normalcy and acceptance of aggression as a reasonable response to conflict (Farrell & Bruce, 1997). Research has suggested that adolescents who tend to affiliate with delinquent peers, are in schools with norms supporting aggression, or have witnessed violence in their communities, have an increased likelihood of subsequently engaging in aggressive behavior (e.g., Henry, Farrell, Schoeny, Tolan, & Dymnicki, 2011; Mazefsky & Farrell, 2005; Vitaro et al.). Therefore, an important focus of prevention and intervention efforts involves minimizing the exposure to such risk factors.

Although minimizing exposure to risk is integral to violence prevention efforts, in many cases it is difficult. A complementary approach in prevention research is to reduce the impact risk factors have on aggression. This approach involves identifying and strengthening protective factors, or those factors that serve as buffers in the face of risk (Vitaro, Brendgen, & Tremblay, 2000). Families, for example, provide valuable resources and opportunities in the lives of developing adolescents. During the transition through middle school, family factors remain relatively stable despite the changes in other contexts (Sameroff, Peck, & Eccles, 2004). Because families are typically more stable than peers and other groups, there is the potential for families to have a greater impact on adolescents over the course of development (Collins & Roisman,

2006). The relative influence of parents and other sources do appear to change as adolescents spend more time with friends in settings such as school and the community than they do with their families. These changes do not imply that parents no longer play an important role in the lives of their adolescents, however. In a longitudinal study of parent-child interactions from ages 10 to 18, for example, Larson and colleagues (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996) found that although early adolescents spent less overall time with their parents, there was actually an increase in the time spent communicating. Thus, the potential exists for parents to continue to have an influence on their children's values and behaviors over the course of adolescence. Although some family processes tend to be universally beneficial for preventing problem behaviors, others may be especially important in buffering adolescents from the risks present in their peer networks, schools, and communities (Sameroff, 2006). Focusing on how parents may reduce the impact of contextual risks for aggression should provide insight into how these factors may be strengthened through intervention efforts.

The purpose of the current study was to examine how family processes protect developing adolescents against the impact of risk factors for aggression found in several levels of the social environment. The specific risk factors for aggression included the association with a delinquent group of peers, attending a school in which there are norms that support aggression, and witnessing violence within the community. The presence of each of these risk factors has been linked to increased levels of aggressive behavior in adolescents. The potential protective family processes that were explored included: a family functioning variable representing parent and adolescent reports of family cohesion, family problem-solving, parental monitoring and involvement, and positive parenting; adolescents' perceived parental support for nonviolent

solutions to conflict; and adolescents' perceived lack of parental support for fighting. There are varying degrees of empirical support for the protective role of these family processes. The current study explored the moderating effects of these potential protective factors on the relation between each risk factor and aggressive behavior.

The following section reviews the literature that supported the need for this study. The first section describes the theoretical framework for the present study. The current literature is then reviewed as it relates to the direct effects that delinquent peer associations, school norms supporting aggression, and witnessing community violence have on aggression. This is followed by a review of the evidence supporting the moderating role of family processes on the impact of these risk factors. Following the literature review, the limitations of the reviewed research are considered along with a discussion of the potential contributions of the present study to the field.

Review of the Literature

The multiple influences on the developing adolescent from peers, schools, communities, and families are best understood as part of an ecological system. Ecological models of development propose that a comprehensive understanding of development must not only include knowledge of the individual, but knowledge of that individual's environment (Magnusson & Stattin, 2006). Ecological models take a developing-person-in-context approach, in that they propose that development is the result of dynamic and enduring interactions between personal characteristics and the surrounding context (Crockett & Crouter, 1995). The dynamic interactions between individuals and their immediate surroundings are referred to as proximal processes (Bronfenbrenner, 1994). Proximal processes are considered "the primary engines of development," (Bronfenbrenner & Morris, 1998, p. 996), in that it is through these processes that we engage with and learn from our environment. In this way, proximal processes influence the development of patterns of thoughts, feelings, and behaviors.

The power of proximal processes to influence the development of behavior is in some part determined by each individual's broader context (Bronfenbrenner, 1994). There are various layers of the environment that influence the developing child, with the two most basic categories being the proximal environment and the distal environment (Magnusson & Stattin, 2006). The proximal environment includes contexts with which the individual is in direct contact, such as the family and peer group. Proximal environments are embedded in more distal environments, which include the school and neighborhood or community (Magnusson & Stattin). For proximal processes to be effective in guiding development they must occur regularly and over an extended period of time. Proximal processes are even more effective if the interactions are with people

with whom there is a strong and mutual bond, and where the other person is invested in the development of the child (Bronfenbrenner & Morris, 1998). Thus, for children, interactions with family members are likely to be the most influential. As children grow into adolescents and their relationships with others outside the family become more prolonged and stable, the influence of other contexts is likely to increase.

It is critical when studying risk and protective factors for child development to remember that the social ecology of adolescents is made up of these multiple contexts (Sameroff, 2006). Within every social context exist sets of behaviors and attitudes that dictate what knowledge and skills are necessary to succeed in that environment (Garbarino, Kostelny, & Barry, 1997). Through observation and interpersonal interaction with the people around them, adolescents develop patterns of behaviors based on what they perceive to be appropriate and inappropriate (Bernburg & Thorlindsson, 2005). Throughout development, children are exposed to a greater diversity of experiences, meaning that the information from multiple sources in the environment can influence how values and behaviors are acquired and shaped (Garbarino et al.).

Adolescents are consequently more likely to engage in aggressive behavior if they are embedded in a context in which aggression is accepted or encouraged by other members of the group. Through proximal processes (e.g., observation, communication and interaction), individuals may be exposed to beliefs, values, and norms that support aggression as a legitimate problem-solving strategy (Bernburg & Thorlindsson, 2005). From a socialization standpoint, exposure to these values makes people more susceptible to internalizing them and adopting them as their own. Ultimately, personal values and beliefs would mediate the relation between the

context and individual aggression (Ousey & Wilcox, 2005). The same would be true for adolescents embedded in a context that supports nonviolent strategies for solving conflict.

Crick and Dodge's (1994) model of social information-processing explains how values and beliefs about aggression and nonviolence are manifested as behaviors. Their model proposes six stages of decision-making that influence adolescents' behavior during interpersonal problem situations. The cognitive stages associated with processing the information inherent in social situations include (1) encoding and attending to social cues, (2) interpreting these cues, (3) clarifying goals, (4) generating possible responses, (5) evaluating the responses and selecting one, and (6) enacting the response. Research has shown that aggressive youth are more likely than other children to display difficulties at each of these steps (Dodge, Pettit, McClaskey, Brown, & Gottman, 1986; Lochman & Lenhart, 1993). Moreover, significant deficits in social information-processing skills predict the use of aggressive behavior in actual problem situations (Perry, Perry, & Rasmussen, 1986). The social information-processing model hypothesizes that social cognitions are used to influence and guide decisions at each stage. Social cognitions are created through past learned experiences, and consist of generalized memories, rules and norms for behavior, and expectations of the self and others (Zelli, Dodge, Lochman, Laird, & Conduct Problems Prevention Research Group, 1999). They are believed to regulate behaviors by informing the way children process information and make decisions when faced with potential conflict (Huesmann & Guerra, 1997).

The development of the specific content of an individual's social cognitions is dependent on his or her environmental context (Magnusson & Stattin, 2006). Normative beliefs, or ideas about the acceptability or appropriateness of a given behavior, for example, are thought to be

formed through the child's own experiences with aggression, and the observation of aggressive behavior enacted by others. One illustration of how context can shape normative beliefs is witnessing community violence. In neighborhoods where violence is common and goes largely unpunished, adolescents are likely to witness violence and observe its benefits. Adolescents exposed to violence are more likely to develop belief systems and values that support aggression as acceptable, normal, and perhaps advantageous (Schwartz & Proctor, 2000). When faced with a problem with peers, these beliefs could inform social information-processing by increasing the likelihood of interpreting the other person's behavior as hostile, increasing the retrieval of aggressive responses, and increasing the likelihood that an aggressive solution will be favorably evaluated and selected. In fact, witnessing violence in childhood has been empirically linked with the likelihood of evaluating aggressive behavior as more positive and as resulting in good outcomes (Schwarz & Proctor). These findings suggest that contextual factors may influence the development of normative beliefs supporting aggression.

At the same time, values and beliefs supporting nonviolence may counter the effects of this risk. In a study of school and peer influences on aggressive behavior, Farrell and colleagues (Farrell, Henry, Schoeny, Bettencourt, & Tolan, 2010) found that individual norms supporting nonviolence and self-efficacy for nonviolent behavior were protective against contextual risk factors for aggression. In particular, these individual beliefs moderated the effects of delinquent peer associations and school norms supporting aggression. The family environment is a critical social context that can influence the development of values and normative beliefs. Through positive family processes, parents have the opportunity to encourage the development of social cognitions that support nonviolent alternatives to aggression.

Direct Effects of Risk Factors

An ecological framework, combined with socialization theory and the social information-processing model, explains how peers, schools, and neighborhoods might influence adolescent aggression. The following sections review the empirical evidence for these influences.

Specifically, the evidence for the direct effects of delinquent peer associations, school norms supporting aggression, and witnessing community violence is discussed.

Delinquent peer associations. Evidence for the relation between delinquent peer associations and aggression was found using the Denver Youth Survey, an accelerated longitudinal study (Huizinga, 1995). Participants in the first wave were 1,521 children and adolescents who were considered high-risk for delinquency based on neighborhood characteristics. Participants were ages 7, 9, 11, 13, and 15 in the first wave, and were interviewed each year for the next five years. At each wave, participants reported on their own delinquent behaviors during the past year, and were classified by the researchers as either aggressive or nonaggressive. Youth also provided information about hypothesized risk factors for delinquency, such as the delinquent or deviant behavior of their peers. Analyses examined how these risk factors influenced both the onset of aggression and the stability of aggressive behavior over the course of the study. Results indicated that affiliation with deviant peers was significantly associated with both the onset and stability of aggression. Specifically, the presence of deviant peers was related to the movement of youth from nonaggressive status to aggressive status, and with tendency for youth classified as aggressive to maintain this status over time.

Although evidence supports the relation between delinquent peer associations and problem behavior, there has been some debate in the literature as to the direction of influence.

Two competing models include the peer influence model and the individual characteristics model (Vitaro et al., 1997). The peer influence model maintains that delinquent peer associations have a direct influence on problem behavior, whereas the individual characteristics model suggests that delinquency is a product of poor parenting and personality traits and is independent of peer influence. According to the individual characteristics model, individual delinquency precedes the affiliation with delinquent peers and so these peers would not affect the trajectory of one's delinquent behavior. In contrast, the peer influence approach hypothesizes that regardless of an individual's initial level of problem behavior, associating with delinquent peers will lead to either the initiation of or increase in these behaviors (Vitaro et al.).

Vitaro and colleagues (1997) aimed to compare these models in a sample of 868 low-income boys participating in a longitudinal study. Data were obtained at various time points throughout the study, including when the boys were ages 6, 11, 12, and 13. Teachers provided ratings of disruptive behavior (i.e., hyperactivity, aggressiveness, and opposition) at ages 11 and 12 using the Social Behavior Questionnaire (Tremblay et al., 1991). These scores were used to create four groups of participants. Boys with the highest teacher-rated disruptiveness scores (i.e., .75 standard deviations [*SD*] above the mean) were classified as Highly Disruptive. Conversely, boys with the lowest teacher-rated disruptiveness scores (i.e., .75 *SD* below the mean) were classified as Highly Conforming. Boys with less extreme scores falling on either side of the mean were classified as Moderately Disruptive or Moderately Conforming, accordingly. Each of these groups was further divided into four subgroups based on the characteristics of their friends. The Pupil Evaluation Inventory (PEI; Pekarik, Prinz, Leibert, Weintraub, & Neal, 1976), a peer nomination procedure, was used to identify each participant's mutual friends and the behaviors

of those friends. Specifically, friends' scores on the aggressive-disturbing subscale of the PEI were used to classify boys into an aggressive-disturbing friends subgroup, a nonaggressive-nondisturbing friends subgroup, or an average friends subgroup. The fourth subgroup consisted of boys who did not have any mutual friendships. The groups and subgroups were analyzed in relation to teacher-reports of disruptiveness and adolescents' self-reports of delinquency (which included items related to physical aggression) one year later.

The individual characteristics model was partially supported, in that the boys who were Highly Disruptive at ages 11 and 12 continued to be highly disruptive and delinquent at age 13, regardless of their friendship subgroup (Vitaro et al., 1997). Friends also did not seem to influence the behavior of Highly Conforming boys, all of whom continued to exhibit few problem behaviors over time. The Peer Influence model seemed the best fit for the boys with more moderate levels of problem behavior, however. For the Moderately Disruptive boys, having aggressive-disturbing friends at ages 11 and 12 was associated with both higher self-reported delinquency and higher teacher-reported disruptiveness at age 13. Furthermore, the levels of delinquency at age 13 that were reported by the Moderately Disruptive group with deviant friends were just as high as the levels reported by the boys in the Highly Disruptive group. In other words, after one year, the boys that were only Moderately Disruptive but had deviant friends became indistinguishable from the Highly Disruptive boys. The influence of aggressive-disturbing friends was also seen for the Moderately Conforming group of boys. Boys that were Moderately Conforming at ages 11 and 12, but had aggressive-disturbing friends, were rated by their teachers at age 13 as being more disruptive than the Moderately Conforming boys who had nonaggressive-nondisturbing or average friends. Thus, although the characteristics of

friends did not affect the trajectories of boys that started with markedly high or low levels of disruptiveness, delinquent friends did contribute to an increase in problem behaviors for boys towards the middle of the spectrum.

Reitz and colleagues (Reitz, Dekovic, Meijer, & Engels, 2006) attempted to identify the direction of peer influence taking a different methodological approach. A Dutch sample of 99 adolescent pairs was assessed between the ages of 12 and 15, and again one year later. Each adolescent rated his or her own externalizing (i.e., aggressive and delinquent behavior) using an adapted version of the Youth Self Report (Achenbach, 1991). The externalizing behavior of the person that each participant identified as his or her best friend was used as a measure of friend delinquency, regardless of whether the friendship was reciprocal. Using structural equation modeling, the authors found support for a model in which over time, adolescents' externalizing behavior is influenced by the behaviors of those they have identified as their best friends. The data fit this model better than the reverse model, in which adolescents influence those they have listed as their best friends.

In a longitudinal study of rural middle school students, Espelage, Holt, and Henkel (2003) examined the effects of peers on fighting and nonphysical bullying behaviors. At two time points during the school year, participants completed measures of their own levels of fighting and bullying. Each student also provided a list of up to three students in their school that frequently bullied others, and a separate list of one to eight of their own friends. Social network analysis, a statistical social mapping technique, was used to identify peer groups. Group-level measures of fighting and bullying were calculated based on the individual group members' scores. Looking at the influence of peers on nonphysical bullying behaviors, the authors found

that peer-group levels of bullying at Wave 1 predicted individual group members' levels of bullying at Wave 2. These results were found for both boys and girls, when controlling for individual levels of bullying at Wave 1. Results also supported the influence of peer-group levels of physical fighting on individual levels of fighting. However, these results were significant for boys only.

Some research on the influence of peers on aggression has focused on impression management, which is the hypothesis that adolescents may use aggression in the context of delinquent peers because of their perceived outcome expectations (Felson, Liska, South, & McNulty, 1994). Impression management implies that aggression in some contexts may be an attempt to be viewed more favorably by others, or it may be a purposeful strategy to gain social status or to appear tough (Bernburg & Thorlindsson, 2005; Faris & Ennett, 2012). This hypothesis is based on the general behavioral assumption that behavior is influenced by the expectation of rewards and punishments. Thus, although some adolescents with delinquent friends have not necessarily internalized their friends' values supporting aggression, they may have adopted the expectation that under certain conditions, aggression is associated with either rewards or the avoidance of punishment (Akers, 1994).

Faris and Ennett (2012) explored the idea of impression management by testing the relations between adolescent aggression, friends' aggressive behavior, and attitudes about the importance of status. The authors also examined differences in the influence of mutual, unreciprocated, and unwanted friendships. They hypothesized that the behavior of unreciprocated friends would have more of an influence on aggression than unwanted friendships. This hypothesis was based on the idea that adolescents are more likely to engage in

impression management behaviors in an attempt to earn a peer's approval and make the friendship mutual. Along the same lines, the authors proposed that adolescents would be more likely to be aggressive if they were members of friendship groups that were aggressive and that placed a high value on status. If adolescents are concerned about raising their status to gain the acceptance of their aggressive peers, there should be more of a need to behave like them (Mrug, Hoza, & Bukowski, 2004). Participants were 4,516 rural, low-income adolescents taking part in a longitudinal study. They were in eighth, ninth, and tenth grades, and were assessed once towards the start of the school year and again six months later. Aggression and victimization was measured through peer nomination. Peer status valuation was measured by asking how important "being popular" was to them. Friendship networks were created using data from peer nomination and social mapping techniques.

Controlling for Time 1 aggression, both the aggressive behavior of friends and friend's valuation of status at Time 1 were related to higher levels of aggressive behavior at Time 2 (Faris & Ennett, 2012). Only mutual friends and peers that did not reciprocate the participants' friendship nominations had an effect, however. Aggressive behavior was influenced by the status valuation of mutual friends and by the aggressive behavior of unreciprocated friends. There was no influence from peers who nominated the participant as a friend, but whose friendship was seemingly unwanted. School-level status valuation and aggression did not affect subsequent adolescent aggression. However, friendship group status did have some effects. When controlling for individual status valuation, friendship-group status valuation influenced aggressive behavior. Interestingly, the positive relation between friendship-group status

valuation and aggression was stronger for groups that were larger and more segregated from other groups in the school.

Mrug, Hoza, and Bukowski (2004) examined the influence of peers' aggressive behavior on externalizing symptoms. Similar to Faris and Ennett (2012) they explored whether there was a stronger influence from peers that the participants listed as their friends, or from peers who listed the participants as friends. Participants included 236 boys and girls that were in third, fourth, and fifth grades at the beginning of a 2-year longitudinal study. The children were from a school district in a small rural town that was comprised of mostly Caucasian, working class families. A peer nomination technique was used to identify peer influences. Each child listed classmates that they considered to be their best friends, which allowed the researchers to identify for each participant those peers that the participant nominated (i.e., desired) and those that chose the participant as a friend (i.e., mutual or unwanted). Peer nomination was also used to obtain classmate-reports of aggression, and teachers provided reports of externalizing behavior. When controlling for the children's own aggression levels, the aggression of desired friends predicted teacher-reported externalizing behavior in three of five analyses. Specifically, desired friends' aggression at Time 1 predicted externalizing two years later (but not at 6 or 18 months later), and desired friends' aggression at Time 2 predicted externalizing at Time 3 and Time 4. Gender did not moderate any of these relations. The finding that only the behavior of desired friends was influential and the behavior of mutual and unwanted friends was not, suggests that adolescents may act like their peers in order to gain approval from them. They have presumably already gained the acceptance of peers that would like to be their friends, and so there is no need to imitate their behavior.

Across studies investigating aggression and related problem behaviors, the association with delinquent peers has emerged as a significant risk factor. Although some individuals are not as likely to be influenced by their peers, longitudinal studies have provided clear support that a delinquent peer network has the potential to change one's trajectory of involvement in problem behaviors. Typically, the influence of peers is attributed to the socialization of aggressive values among friends. However, there is evidence that the use of aggression for some adolescents may be a strategic attempt to gain status in the peer group or to win the favor of desired friends (Faris & Ennett, 2012).

School norms supporting aggression. Stepping outward in the ecological context from one's immediate group of peers leads to the broader school environment. Relatively little attention has been paid in the literature to the culture of the school as a risk factor for aggression. However, schools are social organizations that have been found to have identifiable cultures that uniquely influence the behavior of students (Rutter, 1980). For instance, significant differences were found among twelve British secondary schools on global measures of student behavior problems, even when accounting for the characteristics of the students when they initially entered the schools (Rutter). In another example, different schools were found to hold different standards for what kinds of behaviors were considered appropriate responses to provocation (Felson et al., 1994). The influence of the school environment on aggression is believed to be due to the existence of an established set of norms that support aggression.

Research on school norms supporting aggression have typically focused on two types of norms. Descriptive norms refer to actual measures of aggressive behavior or aggressive beliefs that are present among the student body, whereas injunctive norms represent perceptions about

what is typical or normative among other students. Descriptive norms for a given school or classroom are typically calculated using the aggregate data of individual members' self-reports. O'Keefe (1997), for example, illustrated the high prevalence of aggression found in some schools using reports from a sample of urban and suburban high school students. Roughly 90% of males and females reported having witnessed pushing, grabbing, or shoving in their school during the preceding year. In addition, most students had witnessed hitting or kicking (91% of males and 83% of females), or had seen someone getting beaten up (85% of males and 78% of females). Such pervasive aggression in a school might easily contribute to the development of injunctive norms supporting aggression, or the general perception among students that aggressive behavior is a normal part of their school's culture. Levels of injunctive norms supporting aggression do not necessarily reflect actual levels of aggression, however. In fact, when compared with the actual behavior of their peers, adolescents' perceptions of what is normative tend to favor more negative or antisocial norms (Perkins, Craig, & Perkins, 2011). In other words, adolescents tend to misperceive the behavior of their peers, and assume that others are engaging in higher levels of problem behaviors than they actually are. Such a misperception could ultimately lead to actual increases in aggression, escalating the levels of violence within a school.

A longitudinal study by Felson and colleagues (1994) examined the influence of school norms supporting aggression on the aggressive behavior of individual students. Participants were 2,213 boys from 87 public high schools, who were assessed in the tenth and eleventh grades. Each individual provided ratings of his own levels of interpersonal violence, as well as his beliefs supporting the legitimacy of aggression. In this study, beliefs supporting aggression were

measured by the endorsement of aggressive behaviors as being a "good thing for people to do" in response to provocation. A school-level, descriptive variable of norms supporting aggression was created by aggregating individual reports of their beliefs. Results indicated that individual boys' aggressive behavior was predicted by their school's norms supporting aggression, above and beyond their own beliefs. This finding suggests that adolescents' internalization of school beliefs supporting the legitimacy of aggression only partially accounted for their aggressive behavior. Another factor, such as the impression management phenomenon demonstrated in studies of delinquent peer associations, may have been responsible for the unique influence of school norms.

Bernburg and Thorlindsson (2005) expanded on the study by Felson et al. (1994) in an attempt to further dissect the relation between school norms and aggressive behavior. Their first set of analyses replicated the methods of Felson and colleagues, and follow-up analyses aimed to better isolate the effects of impression management. Participants were 15- and 16-year-old boys and girls taking part in an Icelandic national survey. Students reported on their own levels of aggressive behavior and two measures of personal values. In the first measure of values, participants responded to the same measure used by Felson et al. that asked whether aggression was "a good thing for people to do" in response to provocation. Bernburg and Thorlindsson argued that this measure represented a general and unconditional endorsement of aggression in response to being wronged, and so called these *retribution values*. In contrast, the second values measure was intended to assess the presence of more commonly held beliefs that justify or rationalize the use of aggression under certain circumstances. The values assessed by this measure were considered *neutralization values*, in that these values imply that the necessity of an

aggressive response can counteract or neutralize its inherent wrongness. School-level norms for retribution and neutralization values were created using aggregates of the individual measures. The authors found that school-level neutralization values predicted individual aggression for both boys and girls. For boys, school-level neutralization values were associated with aggression even when controlling for personal neutralization beliefs. These results suggest that both girls and boys in this sample may have internalized school norms associated with neutralization. The finding that school norms predicted boys' behavior above and beyond their internalized values also provides support for an impression management perspective. Unlike in the Felson et al. study, school-level retribution values were not related to individual-level aggression. The authors reasoned that this discrepant finding may be due to cultural differences between Iceland and the United States.

In their second set of analyses, Bernburg and Thorlindsson (2005) attempted to further isolate the effects of impression management by using injunctive, rather than descriptive, norms. They hypothesized that although using aggregate measures of retribution and neutralization values may have been objective measures of school-level values, subjective norms would have more of an influence on individual behavior. These analyses used participants' reports of how much they believed that aggression was acceptable, normal, or looked highly upon among their group of friends. Data from this measure of perceived norms were aggregated to obtain a variable representing school-level injunctive norms. For both boys and girls, individual-level injunctive norms predicted aggression. Furthermore, there was an effect of the whole school's perceptions on aggression even after accounting for individual perceptions. In sum, the results of this study provide support for both a socialization view and an impression management view of

school norm influence. To some degree, adolescents appear to adopt school norms supporting aggression as their own. At the same time, individual adolescents are more likely to be aggressive when part of a student body that believes the prevailing attitude among their fellow classmates supports aggression.

The relation between school-level injunctive norms and student behavior was further demonstrated in a second study by Henry and colleagues (2011). Participants were 5106 middle-school boys and girls at 37 schools in four cities. Two class cohorts of adolescents that were one year apart in school were assessed at four time points between grades six and eight. Physical aggression was represented by a composite of self-report and teacher-report measures. Individual beliefs supporting aggression were measured using a self-report scale assessing individual approval or disapproval of aggressive behavior. Injunctive norms for violence and nonviolence were assessed using a measure of perceived school norms (e.g., "How would the kids at your school feel if a kid hit someone who hit first?"). Individual responses on this measure were aggregated within each class cohort of students in each school to create school-level variables of injunctive norms. Results indicated that for sixth grade boys and girls, school-level injunctive norms supporting violence were significantly related to higher levels of individual-level aggressive behavior and individual-level beliefs supporting aggression. The relation between school-level injunctive norms and aggression was stronger for girls than it was for boys. The study's longitudinal data suggested that the relation between school injunctive norms supporting aggression and individual beliefs supporting aggression tended to weaken over the course of middle school. However, school norms were related to individual aggressive behavior at each time point with no significant changes in strength.

In addition to norms at the whole-school level, Henry and his colleagues (2000) have explored the influence of norms supporting aggression at the classroom level. In a study of the influence of classroom norms on individual student aggression, the authors studied two samples of elementary school students from disadvantaged neighborhoods and diverse racial and ethnic backgrounds. The first sample of students consisted of 614 boys and girls from 45 classrooms in the first, second, and fourth grade. The second sample included 427 children from 21 classrooms in third and sixth grade. Each sample was assessed at two time points that were two years apart. Individual aggression was measured through peer nominations in the first sample, and teacher-report measures of aggression in the second sample. Each class member completed a measure of their beliefs about aggression. A retaliatory beliefs subscale from this measure was used to measure individual beliefs, and the aggregate mean of a general beliefs subscale was used as a measure of classroom-level normative beliefs. Classroom descriptive behavioral norms were measured using aggregates of the teacher-rated aggression scores. Finally, peer nominations, teacher reports, and classroom observations were used to create scores representing the degree to which aggressive students in each classroom a) are rejected by their peers, b) are seen as popular by their peers, and c) are reprimanded by the teacher. Results suggested that descriptive norms for aggression (i.e., classmates' actual aggressive behavior) did not predict a change in aggression over time. However, class-level general beliefs supporting aggression were related to an increase in individual aggressive behavior. Furthermore, individual students' aggression decreased over time if they were in classrooms in which aggressive children tended to be rejected by their peers. Path analyses revealed that the effect of class-level beliefs on individual students' aggressive behavior was partially mediated by the students' personal retaliatory beliefs.

One explanation for this finding is that the normative beliefs held by the class were, to some degree, internalized by the individual students who later behaved aggressively. That the data supported partial, and not full, mediation suggests that classroom norms may have influenced aggressive behavior in other ways besides the internalization of beliefs.

The results of one study appear to run counter to the previously reviewed findings. A study by Ousey and Wilcox (2005) did not support a unique influence of school norms for aggression on individual aggression when taking into account individual beliefs. Participants in this study were 3,690 seventh-grade students in 65 Kentucky middle schools. Between-school analyses found that school-level values supporting aggression predicted school-level violence. On an individual level, however, the effects of school-level norms on individual aggression were not significant. In addition, the relation between individual values and aggression was not affected by the school-level norms supporting aggression. In this case, the idea that individual values supporting aggression are enhanced by the school context was not supported.

In the 2000 study by Henry and colleagues, children's personal normative beliefs about aggression were found to partially mediate the relation between the norms of their classrooms and aggressive behavior. This finding suggests a process of socialization, whereby school and classroom norms exert an influence on aggressive behavior due to individual students' internalization of the prevailing value system. A socialization model has not accounted for all of the school-level influence on aggression, however, and it appears as though impression management also occurs (e.g., Felson et al., 1994; Bernburg & Thorlindsson, 2005). Some adolescents appear to engage in aggression based on the perception that it is normative or desirable behavior at their school, despite their personal beliefs about violence. Perceptions about

what is normal or acceptable may come from observations of the actual behavior of classmates. Indeed, school-level descriptive norms for aggression have been linked to aggressive behavior. At the same time, the evidence supporting the relation between injunctive norms and aggression implies and that perceptions of school norms are often independent from the actual beliefs or behaviors of the student population.

Witnessing community violence. Of the three contextual domains of risk included in the current study, a violent community is the most distal to the individual. However, the relation between exposure to violence and aggressive behavior is well documented. Buckner, Beardslee, and Bassuk (2004), for example, examined the direct effects of community violence exposure on mental health outcomes in a sample of high-risk children from low-income families. Participants were a racially and ethnically diverse sample of 95 boys and girls between the ages of 8 and 17 (mean age 11 years, 9 months old). The youth reported on their exposure to violence in the community, either indirectly as a witness or directly through personal experience. The prevalence of violence exposure in this sample was high, but consistent with other reports from high-risk children. For instance, 65% of participants reported witnessing at least one form of moderate to severe violence in their lifetime. Boys reported higher rates of experiencing at least one form of violence (70%) than did girls (54%). Older children were also more likely to report exposure to violence. Regression analyses revealed that exposure to violence was positively associated with mothers' reports of their children's externalizing behavior, even when controlling for the youth's experience of nonviolent life stressors, the mother's level of distress, housing status, and demographic variables. The association between exposure and externalizing was mediated by the children's perceived sense of danger in their community, such that

externalizing behavior was higher among children who were exposed to violence and continued to feel unsafe.

Another cross-sectional study included 471 sixth grade students from an urban school district, most of whom were Hispanic or African American (Ng-Mak, Salzinger, Feldman, & Stueve, 2004). Students reported on their own exposure to community violence and aggressive behavior. Parents also provided reports of their children's physical aggression using four items from the aggression subscale of the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001). Descriptive results indicated that boys reported higher levels of both witnessing and experiencing community violence than did girls. For both boys and girls there was a significant relation between exposure to community violence and aggression, as rated by both the adolescents and their parents.

O'Keefe (1997) examined the relation between witnessing violence in both the community and the school, while controlling for interparental violence and child abuse at home. Participants were 935 high school students who were mostly juniors or seniors, with a mean age of roughly 17 years. The high schools included in the study serviced urban as well as suburban populations, with a diversity of races, ethnicities and socioeconomic groups. Adolescents provided information about their externalizing behavior using the Youth Self-Report (Achenbach, 1991). They reported on the frequency of witnessing violence in their community, at school, and between their parents, as well as their experience of physical abuse at home, using various modifications of the Conflict Tactics Scale (Straus, 1979). Students in this sample reported high levels of witnessing violence in their communities and schools. For example, 50% of the males reported having witnessed a stabbing in their communities, and 45% reported

witnessing a shooting or a drive-by near their school during the previous year. For nearly every item on both the community and school violence measures, males were significantly more likely than females to report exposure. Results indicated that when controlling for violence in the home, witnessing violence at both community and school predicted males' externalizing behavior. For females, witnessing violence at school, but not in the community, significantly predicted externalizing.

In a longitudinal study, Attar, Guerra, and Tolan (1994) examined the impact of community violence exposure on aggressive behavior in urban children living in disadvantaged neighborhoods. Participants were African American and Hispanic children that were initially assessed when they were in first, second, or fourth grade, and then again one year later. All children were from neighborhoods with higher than average levels of poverty and violence. For the purposes of the study, the severity of each child's neighborhood was classified as either highly or moderately disadvantaged. Cross-sectional findings indicated that exposure to violence was associated with higher levels of teacher-rated aggression, but only for those children living in neighborhoods with high levels of disadvantage. Prospective findings revealed that exposure to violence predicted aggression at Time 2 for all children, even when controlling for Time 1 levels of aggression.

Farrell and Bruce (1997) investigated the effects of witnessing community violence on violent behavior in a sample of 436 urban middle school students, most of whom were African American. At three time points over the course of one school year, students completed measures assessing violence they had witnessed and their engagement in violent behavior. Analyses were conducted separately for girls and boys. Results for girls suggested that witnessing violence

predicted increases in violent behavior over the course of the school year. In contrast, although boys' witnessing violence and violent behavior were significantly correlated at Time 1 ($r = .40$), witnessing violence did not predict increases in violent behavior over time. Initial levels of witnessing violence and violent behavior were higher for boys than for girls, which raises the possibility that the lack of significant increase in boys' violent behavior was due to a ceiling effect. It is also possible that the impact of witnessing violence may have occurred earlier for boys in this study, prior to the first wave of data collection (Farrell and Bruce).

Schwab-Stone et al. (1999) also used a longitudinal design to study the direct effects of exposure to violence on externalizing behavior. Participants were urban students that were initially assessed in sixth, eighth, and tenth grades, and again two years later. The final sample at Time 2 was 1,093 boys and girls. At each wave, students completed an assessment battery that asked about their direct and indirect exposure to violence, their engagement in antisocial behavior during the past year, and their willingness to use physical aggression in response to provocation. Externalizing behavior was a latent variable based on students' reports of antisocial behavior and willingness to use aggression. Within both waves of data, exposure to violence was related to externalizing behavior. Furthermore, longitudinal analyses indicated that the lifetime exposure to violence reported at Time 1 was associated with externalizing behavior reported two years later. This was the case for both younger and older adolescents.

A recent study using data from the targeted sample of the Multisite Violence Prevention Project (i.e., a subset of adolescents similar to the one used in the current study) found support for a reciprocal relation between witnessing community violence and physical aggression (Farrell, Mehari, Kramer-Kuhn, & Goncy, in press). Participants were a high-risk sample of

1,156 adolescents who completed measures of their violence exposure in the fall and spring of sixth grade. Physical aggression was measured using a composite of adolescent self-report and teacher-report data collected at each wave. Initial levels of witnessing violence predicted changes in levels of physical aggression from Wave 1 to Wave 2. At the same time, initial levels of physical aggression predicted changes in witnessing violence. These findings provide support for witnessing violence as a risk factor for aggression, but also assert that aggressive behavior can be a risk factor for further violence exposure.

A meta-analysis conducted by Fowler and colleagues (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009) looked at the effects of community violence exposure on mental health outcomes. The results related to externalizing behavior, which included aggression, delinquency and other forms of acting out behavior, are relevant to the current study. A moderate effect size was found for the combined effects of exposure to violence on externalizing behavior. When exposure was separated into victimization, witnessing violence, and hearing about violence, the relation between exposure and externalizing behavior was stronger as the proximity to the violence increased. In other words, externalizing was generally highest for those children and adolescents that had been the victims of violence, next highest for those that had witnessed violence, and lowest for those that had only heard about violence. Results further indicated that adolescents displayed more externalizing problems in response to exposure to violence than did younger children. The authors reasoned that with repeated exposure to violence, adolescents may have had more time to come to see aggression as a viable problem-solving strategy.

Family Processes as Moderators of Risk

The family is a major factor in protecting youth from negative developmental outcomes (Sameroff, 2006). Despite the commonly held belief that they are no longer influential presences in the lives of adolescents, families do remain prominent (Collins & Roisman, 2006). Ecological theories maintain that proximal processes are the foundation for development, and that the most influential interactions are the result of processes that occur regularly and over an extended period of time (Bronfenbrenner & Morris, 1998). Even though proximal processes within the family may occur less frequently during adolescence, they have been consistent throughout the adolescents' lives (Collins & Roisman). Thus, the influence of families is likely to be more powerful than the influences from more recently encountered or temporary environments. Even as adolescents develop autonomy and spend more time with peers in school and in the community, they will theoretically have a foundation of knowledge, skills, and beliefs based on family processes.

The effects of family processes can be generally universal across adolescents, or can have more pronounced effects for specific populations. In the literature on risk and protective factors, there is some confusion about how to differentiate between these types of influences. There is little disagreement about the definition of risk factors, which are considered variables that generally increase the likelihood of undesirable outcomes (e.g., Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995). Although variables that generally decrease this likelihood are sometimes called protective factors, this encourages the view that protection is merely the absence of risk. Risk factors and protective factors should not be considered opposite ends of the same continuum, however, as these variables often operate independently (Luthar, Cicchetti, &

Becker, 2000). Whereas high risk and low protection often do occur together, this is not always the case. Studying risk and protective factors as distinct constructs allows for the potential to understand how individuals can achieve positive outcomes despite high levels of risk (Jessor et al.).

Studying the relations among risk and protective factors provides an even clearer picture of how each influences development (Jessor et al., 1995). Variables that are associated with positive outcomes can either operate independently of risk, or interact with risk factors that alter their effects. Factors that tend to have a direct, beneficial effect for all adolescents, regardless of their level of risk, are considered promotive (Sameroff, 2006). Although understanding factors that promote good outcomes among all adolescents is valuable, many researchers are particularly interested in understanding how youth who are at risk for negative outcomes can be protected. Thus, risk and protective factor researchers consider protective factors to be only those variables that moderate the impact of risk (Jessor et al.). Luthar, Cicchetti, and Becker (2000) presented a system of definitions to further classify protective effects. Though not all studies report their results in this way, there are potentially three terms that are available to describe protective factors. Moderator variables that eliminate the effects of the risk factor, such that the negative outcome does not increase despite the presence of risk, are called *protective-stabilizing*. In contrast, *protective-reactive* factors are those that attenuate or buffer the negative effects of risk, but do not eliminate its effects. In other words, protective-reactive factors are protective at lower levels of risk, but their effectiveness declines as the level of risk increases. The rare factors that serve to increase competencies in the face of increasing risk have been termed *protective-enhancing*.

The following section reviews the literature on family processes as protective factors. The domains of potential protective family processes reviewed include family functioning (e.g., family cohesion, family problem-solving, parental monitoring and involvement, positive parenting), and perceived parental support for nonviolence as opposed to fighting. These domains were selected based on empirical and theoretical evidence for their potential to serve as protection for adolescents that have an increased risk for engaging in aggression due to peer, school, or neighborhood risk factors.

Family functioning.

Delinquent peer associations. Several studies have examined the extent to which family functioning moderates the relation between the risks associated with delinquent peers and adolescent problem behaviors. Vitaro, Brendgen and Tremblay (2000), for example, examined the extent to which attachment to parents and parental monitoring moderated the impact of having an aggressive best friend on delinquent behavior. Participants were 567 French Canadian boys taking part in a longitudinal research study. When participants were ages 11 and 12, they identified a best friend in their class, and completed measures assessing their perceptions of parental monitoring and their own feelings of attachment toward their parent. During this wave of data collection, the students that had been identified as best friends were assigned aggressiveness/disturbance scores based on the results of a peer-nomination procedure. When participants were ages 13 and 14, the boys reported on their delinquent behavior over the past year. Results tended to support the hypothesis that parental attachment, but not monitoring, buffers against the negative influence of a delinquent best friend.

Mason, Cauce, Gonzales, and Hiraga (1994) also looked at how parental attachment might protect African American adolescents from the risks associated with delinquent peers. When the participants were ages 12 to 14, they completed a measure assessing their level of maternal attachment and a primary caregiver completed the externalizing scale of the CBCL (Achenbach & Rescorla, 2001). One year later, primary caregivers again reported on their adolescents' externalizing using the CBCL, as well as an additional measure of problem behaviors. Adolescents also completed measures assessing their own engagement in problem behaviors, as well as the deviant behaviors of their peers. Results indicated that the affiliation with deviant peers was significantly related to both self- and parent-reports of adolescents' problem behavior. There was no main effect for the mother-child relationship on problem behaviors. However, the mother-child relationship moderated the effects of peer deviance on adolescent-reported delinquency. The interaction was protective-reactive, in that whereas deviant peers increased the problem behaviors of all adolescents, there was less of an increase for youth who reported having positive relations with their mothers. A mediation model in which the mother-child relationship predicted problem behavior through its impact on peer deviance was not supported. The best fit was a moderation model in which a secure attachment attenuated the relation between problem peers and subsequent delinquency.

Mrug and Windle (2009) tested the moderating role of parenting quality (i.e., nurturance and discipline) in the association between peer deviance and externalizing behavior. The sample included 500 children (79% were African American) taking part in a longitudinal study. When participants were in fifth grade, they identified their friends through a peer nomination procedure; the deviancy of these friends was determined using teacher-reports of aggressive and

disruptive behavior. Five months later, parents completed measures of parental nurturance, harsh discipline, and inconsistent discipline, which were combined to form a composite that represented degrees of positive or negative parenting quality. At a seventeen –month follow-up, adolescents reported on their externalizing behavior during the past 12 months. Results suggested that there was no main effect of parenting quality on externalizing behavior. However, there was an interaction with peer deviance, such that having deviant peers was associated with higher externalizing behavior for adolescents that experienced more negative parenting.

Further support for the protective role of positive family functioning was found in a study of low-income, Mexican origin families. German, Gonzales, and Dumka (2009) examined the protective role of familism, or the Latino set of values that stress the importance of family. Familism is comprised of beliefs about familial obligations, perceived support and emotional closeness, and the idea that one family member’s behaviors represent the family unit as a whole. Reports of familism were obtained from seventh grade boys and girls, as well as from their mothers and fathers. Youth provided reports of their affiliation with deviant peers. Externalizing behavior was assessed by parents and two different classroom teachers using the externalizing scales of the CBCL and Teacher Report Form (Achenbach & Rescorla, 2001). Across student, mother, and father ratings of familism, the relation between peer deviance and externalizing behavior was weaker at higher levels of familism. These findings were only significant for teacher reports of externalizing, however, and not parental reports.

Few studies were found that looked at the interaction between delinquent peer associations and family functioning using specific measures of aggression or violence as the dependent variable. In one cross-sectional study, Zimmerman, Steinman, and Rowe (1998) tested

parental support as a moderator of the influence of violent friends on adolescent violence.

Participants were 697 African American ninth grade students who had been identified as being at risk for school-dropout due to low grade point averages. Students completed measures of their assaultive violent behavior, their friends' violent behavior, and their perceived emotional support from mothers and fathers. For both boys and girls, the affiliation with violent friends was positively related to their self-reported violence. Perceived support from mothers, but not fathers, was found to attenuate the risk that friends had on adolescents' violent behavior.

Support for moderation was not found in a study by Henry, Tolan, and Gorman-Smith (2001), who investigated the protective role of family functioning in the relation between deviant peers and violence. This study used data from the Chicago Youth Development Study, which was a longitudinal study of male adolescents from disadvantaged communities. When the participants were an average age of 12 to 13, the adolescents and their mothers completed measures of family relationship characteristics and parenting practices. Positive family relationship characteristics included cohesion, communication, beliefs about family and deviance, support, and organization; parenting practices included positive parenting, discipline practices, and monitoring/involvement. A cluster analysis of scores on these measures over time revealed four family types: exceptionally functioning (high parenting practices and structure, high cohesion, beliefs about importance of family), task-oriented (high levels of parenting practices and structure but low cohesion and beliefs about family), struggling (low on discipline, monitoring/involvement, structure, cohesion, and beliefs), and moderately functioning (adequate but not high levels of discipline and monitoring/involvement). When participants were young adolescents, they reported on the delinquency and violence of the peers in their social network.

In later adolescence, they gave self-reports of their own delinquent and violent behaviors committed within the past year. A model in which the family clusters moderated the influence of peer deviance on later violent behavior was not supported. The data were a better fit for a partial mediation model in which deviant peers mediated the relation between family type and violence. In other words, these results suggested that parents were important in their children's initial development of a peer social network, but did not affect the influence that the peers had on their children. This conclusion is contrary to the findings of the study by Mason et al. (1994), in which the results favored moderation over mediation.

Similarly, Farrell and colleagues (Farrell, Henry, Mays, & Schoeny, 2011) did not find support for perceptions of parental involvement as a moderator of the relation between delinquent peer associations and aggression. This study also looked at school norms supporting aggression as a risk factor, and parental support for nonviolence as a potential protective factor; these analyses are discussed in more detail in subsequent sections. Participants in this study were 5,581 racially and ethnically diverse sixth grade students from 37 schools who were participating in a longitudinal study. The adolescents and their teachers completed measures at multiple time points from sixth through eighth grade. Adolescents provided reports of their friends' delinquent behavior and of their perceptions of parental involvement (e.g., the extent to which they engage in discussions with parents about their behaviors and participate in family activities). Aggression was represented by a cross-informant measure that combined adolescent and teacher reports. Delinquent peer associations were significantly related to aggressive behavior, and the strength of the relation increased over time. Although higher levels of perceived parental involvement were associated with lower levels of aggressive behavior, involvement did not moderate the

effects of delinquent peers. Findings from this study suggest that although parental involvement may have served as a promotive factor that was beneficial across adolescents in the sample, it did not protect against the negative influence of delinquent peers.

School norms supporting aggression. Little research has been conducted examining the protective role of family functioning in the association between school norms supporting aggression and individual aggressive behavior. In fact, the previously described longitudinal study by Farrell and colleagues (2011) is the only study that could be found. As mentioned, a cross-informant measure of youth and teacher ratings was used to measure aggression, and perceived parental involvement was reported by the youth. School norms supporting aggression were measured in two ways. The first was a measure of descriptive normative beliefs. A score for each class (grade of students within each school) was calculated by averaging the scores of each member's personal beliefs about aggression. The second was a measure of individual injunctive norms, or beliefs about what other students in their school consider to be acceptable. Main effects showed that both class norms for aggression and individually perceived school norms for aggression were associated with higher levels of aggressive behavior. Interaction effects revealed that perceived parental involvement buffered the negative effects of each risk factor, but only for girls.

Witnessing community violence. The research testing the protective effects of positive family functioning on the association between witnessing community violence and aggressive behavior has produced mixed results. In one study that supported an interaction, Ozer (2005) looked at the moderating effects of perceived emotional support. She assessed a racially and ethnically diverse sample of 73 adolescent boys and girls when they were in seventh grade, and

again when they were in eighth grade. Adolescents completed self-report measures of their direct and indirect exposure to violence, their perceived emotional support from mothers, fathers, and siblings, and their aggressive behavior. They also reported on their experienced daily hassles, which was used as a control variable. Results suggested that when Time 1 aggression and current daily hassles were controlled for, exposure to violence predicted increases in aggressive behavior from Time 1 to Time 2. However, for adolescents who reported high maternal emotional support, exposure to violence did not have an effect on aggression. Supportive relationships with fathers and siblings did not significantly buffer the risk for aggression. These findings support a protective-stabilizing effect of maternal emotional support on the relation between exposure to violence and aggression.

In a study from the previously described Chicago Youth Development Study, Gorman-Smith, Henry, and Tolan (2004) tested whether family functioning moderated the relation between direct and indirect exposure to community violence and individual violence perpetration in adolescent boys. Family functioning was represented by clusters of exceptionally functioning families, task-oriented families, struggling families, and moderately functioning families. The adolescents reported on their own violence perpetration and exposure to community violence as witnesses and victims. Results revealed a direct effect of exposure to violence in early and mid-adolescence on violent behavior in late adolescence. Family functioning was found to moderate the effects of this risk. Specifically, adolescents from exceptionally functioning families who were exposed to community violence appeared to be protected from its influence on violent behavior. Whereas the odds of engaging in violence after exposure significantly increased for youth in the struggling, task-oriented, and moderately functioning family clusters, there was no

such increase for youth in the exceptionally functioning cluster. Interestingly, although exceptionally functioning families protected adolescents from the influence of exposure to violence, they were no better than most other families at protecting the youth from the exposure itself. These findings underscore the importance of identifying and strengthening factors that reduce the impact of risk, given the difficulties in preventing exposure.

In a cross-sectional study, Mazefsky and Farrell (2005) tested perceived family support and perceived parenting practices (i.e., monitoring and discipline), as moderators of the link between witnessing violence and aggression. Participants were male and female ninth grade students from poor, rural communities. Adolescents provided self-reports of their levels of witnessing violence, aggressive behavior during the past 30 days, and perceptions of family support and parental monitoring and discipline. When analyzed separately, family support and parenting practices both significantly moderated the association between witnessing community violence and behaving aggressively, such that the association was stronger for adolescents who reported experiencing low levels of parental support and poorer parenting. A combined model revealed significant moderating effects of parenting practices, but the effects for family support were no longer significant. For this sample, family support may have had weak protective effects that were overshadowed by the effects of parental monitoring and discipline.

Not all studies have found that positive family functioning buffers the impact of witnessing violence on youth aggression. For example, Benhorin and McMahon (2008) found a promotive, but not protective, effect for perceived social support from parents. Participants were 127 students recruited from two elementary schools from a public housing community in Chicago. The adolescents were between the ages of 10 and 15 and most were African American

from low-income families. Youth completed measures related to their direct and indirect violence exposure and their perceived social support from parents, teachers, classmates, and close friends. Reports of aggression were obtained from the adolescents, their peers, and teachers. Main effects results suggested that higher rates of exposure to violence were associated with higher rates of aggression, as reported by youth, peers, and teachers. Higher levels of support from parents were associated with lower levels of teacher-reported aggression, but there was no evidence for an interaction to support a moderation hypothesis. The fact that there was a main effect, however, suggests that the positive effects of support were equal across all the participants, but were not more pronounced for those who had experienced higher rates of violence exposure.

The results of several additional studies have not supported the protective role of family functioning on the impact of violence exposure on aggressive behavior. Salzinger, Feldman, Rosario, and Ng-Mak (2010), for example, did not find an interaction between the effects of exposure to community violence and parent attachment on externalizing. Gorman-Smith and Tolan (1998) found a protective-reactive effect for family support and organization on the association between exposure to violence and aggressive behavior. In other words, children exposed to violence were more likely to be aggressive even if their families were highly supportive and structured. Given the conflicting evidence, further investigation into the protective effects of positive family functioning in the context of witnessing community violence is warranted.

Parental support for nonviolence. Everyday family conversations provide important opportunities for parents to guide their children's values and potential responses to peer problems

(Werner & Grant, 2009). Through direct communication of their beliefs, parents can help children understand and constructively approach conflicts using nonviolent strategies (Garbarino, Kostelny, & Dubrow, 1991). From early on, many parents express their views on aggression directly to their children, as indicated by a study of mothers and their preschool-aged children (Laird, Pettit, Mize, Brown, & Lindsey, 1994). In a series of telephone interviews, mothers provided information about the recent peer-related conversations that they had had with their children. In over a quarter of the conversations, mothers reported giving advice to their children about peer problems. Advice most commonly consisted of attempts to help the child handle bullying or peer aggression. One qualitative study with adolescents provided insight into the content of their parents' messages about fighting and nonviolence (Farrell, Mays, et al., 2010). Adolescents reported several ways in which their parents encouraged them to handle peer conflicts, including seeking support, fighting, walking away, ignoring the problem, or telling themselves that the problem is not worth fighting over. Some adolescents also stated that their parents expressed support for proactive ways to avoid peer problems, such as treating others with respect and apologizing for a wrongdoing.

Evidence for the promotive effects of parental support for nonviolence was found in a study by Malek, Chang, and Davis (1998). The authors surveyed 567 students from three middle schools of varying demographics about their parents' beliefs about fighting. Students were presented with a scenario in which they were insulted by a peer, and were asked how they believed their parents would want them to respond. The majority of students (70%) believed that their parents would not want them to fight in this situation. Students who believed this were less likely to report having been in a fight during the past month, compared to students who believed

their parents would endorse fighting. Of all of the students surveyed, roughly half of the students indicated that they had specifically discussed this issue with their parents and knew their expectations.

A study by Orpinas, Murray and Kelder (1999) also found support for the direct effects of parental support for fighting on aggression. The authors investigated the influence of four parenting variables: perceived parental support for fighting, parental monitoring, family structure, and parent-child relationship. The mostly Hispanic sample included 8,865 male and female students from eight urban middle schools. Students completed self-report measures of their aggressive behaviors in the week prior to taking the survey, as well as a measure of perceived parental messages supporting fighting and nonviolence. The scale was unidimensional, such that parental support for fighting and parental support for nonviolence were at the opposite ends of the same scale. Higher levels of perceived parental support for fighting were significantly related to higher levels of aggressive behavior ($r = .50$). In addition, students who had been in a fight at school, been injured in a fight, or carried a weapon in the past week were significantly more likely to have perceived their parents as telling them that fighting was acceptable. Parental support for fighting uniquely accounted for 14% of the variance in aggressive behavior, which represented more of the variance than any of the other parenting factors examined.

Given the extant literature on the prevalence and effects of perceived parental support for violence and nonviolence, there are surprisingly few studies that have looked at its ability to buffer against risk for problem behaviors. The previously discussed study by Farrell and colleagues (2011) is the only investigation that could be found examining parental support for

violence or nonviolence as a moderator of risk. The specific risk factors examined were the impact of delinquent peer associations and school norms supporting aggression. Adolescents completed a measure of their perceptions of parental support for fighting and nonviolence. The procedure for obtaining school norms is described above. Again, aggression was measured through self- and teacher-reports. Results related to peer risk suggested that low levels of parental support for fighting buffered the impact of delinquent peers on aggression. High levels of parental support for nonviolence also moderated the relation, but for girls only. Parallel results were found for both measures of school norms for aggression. For both girls and boys, low parental support for fighting was found to be a protective factor that buffered the negative effects of individual injunctive norms and school-level descriptive norms supporting aggression. High parental support for nonviolence buffered these risks for girls, but not for boys.

One related example of how the influence of peers could be attenuated by parental communication of beliefs was found outside the field of aggression research. In this study on peer influences on risky sexual behavior (e.g., high number of partners, inconsistent condom use), Whitaker and Miller (2000) found that adolescents were more likely to engage in this behavior if they reported that most of their peers did as well. However, the influence of peer norms on risky sexual behaviors tended to be weaker for adolescents that had previously discussed sex and condom use with their parents. Thus, parental support for safe sex practices appeared to buffer the impact of perceived peer norms and risky sexual behavior. No studies could be found that tested parental support for nonviolence as protection against the risks associated with witnessing community violence.

Summary

Ecological models emphasize the influence of proximal processes within the family on adolescent development. Families can buffer the negative impacts of peer, school, and neighborhood influences by providing supportive and cohesive relationships, modeling appropriate ways of responding to interpersonal conflict, and promoting values that support nonviolence over violence. There is a limited body of previous research to support these family processes as protective against the risks associated with delinquent peer associations, school norms supporting aggression, and witnessing community violence. However, the lack of research and the presence of methodological limitations in existing studies make drawing conclusions difficult. Limitations of previous work and the contributions of the present investigation are addressed next.

The Present Study

There is convincing evidence for the direct effects of delinquent peer associations, school norms supporting aggression, and witnessing community violence on aggressive behavior in adolescence. The evidence is less clear, however, regarding the ability of family processes, such as family functioning and parental support for nonviolence to buffer against these risks. One reason for the lack of clarity is that there is relatively little published literature examining family processes as true protective factors of the relation between peer, school, and neighborhood risks for aggression. Thus, the present study tested whether each family process had a direct, beneficial effect for all adolescents (i.e., promotive effects), and whether each moderated the impact of risks for aggression (i.e., protective effects). The putative protective factors included family functioning as measured by family cohesion, parental monitoring and involvement, positive parenting, and family problem-solving skills, as well as variables representing parental support for nonviolence and fighting.

The current study further contributes to the literature by addressing additional limitations found in previous research. For example, one limitation of previous work has been the focus on broad measures of adolescent problem behaviors, such as delinquency and externalizing, rather than on aggressive behavior. The use of such measures has the potential to cloud the effects of the risk factors on aggression, given that these measures often include a diverse set of items. For example, witnessing community violence may not significantly relate to a measure of delinquency, given the tenuous theoretical connection between observing violence and committing nonviolent acts such as theft or vandalism. Given the vast theoretical and empirical evidence from social cognitive and socialization theories, it is surprising that so few studies have

examined the influence of the peer group, school, or community specifically on aggressive behavior. A goal of the current study was to isolate the impact of risk factors on aggression by using measures that specifically tap into this behavior.

A second limitation of previous work has been the use of family variables from the perspective of only one source. In nearly all of the studies reviewed, perceptions of family processes or parenting practices were gathered from the adolescent alone. Very few of the reviewed studies considered the influence of family factors from the perspectives of both adolescents and their parents. Studies often find that adolescent and parent reports are not highly correlated, even when responding about constructs within their own family (e.g., Barnes and Olson, 1985). The different perceptions that family members have about family processes are likely to create different patterns of results. German and colleagues (2009), for example, found that the familism values held by adolescents, mothers, and fathers produced different patterns when each was tested as a moderator of the association between peer deviance and externalizing. The current study included latent classes representing reports of family cohesion, family problem-solving, parental monitoring and involvement, and positive parenting from both adolescents and parents. The contribution of each informant provides a unique perspective on the ability of family processes to buffer risks for aggression in different contexts.

The current study also included a composite measure based on multiple reports of adolescent aggressive behavior. The use of multiple reporters avoids inflated correlations among variables due to shared method variance. The use of a composite measure of aggression also captures adolescent behavior as it is displayed across settings (i.e., at home and at school; German et al., 2009). The importance was demonstrated in the study by German and colleagues,

whose results were significant when using teacher-reports, but not parent-reports, of externalizing. If the researchers had used only parent-report measures in their study, important findings would not have been identified. The current study used a composite measure based on ratings of aggression from parents, teachers, and the adolescents themselves.

The present study aimed to expand on the previous literature by using data collected from a large and diverse sample of adolescents. Such samples help provide the variance and power necessary to detect clinically significant effects in models that include numerous factors at multiple levels (i.e., individual and school). The data used in the current study represent boys and girls from two cohorts within 18 schools in four different geographic locations. Analyses controlled for demographic variables including gender, race, ethnicity, and family structure.

The longitudinal design of the larger project from which the current study drew its data is also ideal. One of the benefits of using longitudinal methods is the ability to examine changes over time. The present study used analytic methods to identify systematic increases or decreases in the strengths of risk and protective influences over the course of middle school. Examining the relations among variables at different time points while controlling for previous levels can provide insight into the direction of influence. This study explored the extent to which protective factors present in the family at the start of the sixth grade buffer adolescents from risk factors they subsequently encounter over the following three years.

The design of the larger project also provided a unique opportunity to study school norms supporting aggression. The larger project was an intervention study that included two samples of adolescents: a *targeted sample*, who were identified by their sixth grade teachers as having high rates of aggression and a high level of potential influence on their peers, and a *cohort-wide*

sample that represented a random sample of their classmates. The adolescents in the targeted sample made up the participants in the current study, as they provided reports of their aggressive behavior, perceptions of family processes, affiliation with delinquent peers, and witnessing violence. Data from the parents of the targeted sample students were also gathered for several measures. The assessment of the larger, cohort-wide sample of students included individual perceptions of school norms supporting aggression. Using an aggregate measure of the individual reports of the injunctive norms among classmates in each school served as a measure of school-level norms supporting aggression that was not confounded by the beliefs of the current study's participants.

Finally, the current study aimed to expand on the current literature by exploring gender differences in the hypothesized relations. Several of the reviewed studies included only male participants, leaving few studies from which to draw meaningful conclusions about gender. The few studies that have reported gender effects suggest that there may be important differences. Farrell and colleagues (2011), for example, found very different patterns between boys and girls when testing parental involvement, high parental support for nonviolence, and low parental support for fighting as moderators of risk for aggression. Furthermore, there were gender differences based on the specific risk factor tested. The present study examined the relations among risk factors, protective factors, and aggression separately for boys and girls, with the intention of adding to this knowledge base.

The purpose of the current study was to begin to fill some of the gaps in empirical evidence regarding the protective effects of family processes on contextual risk factors for aggression. This study attempted to address some of the limitations of previous research by

testing protective effects examining moderation, focusing the dependent variable on physical aggression, using data from multiple informants, and using longitudinal data from a large and diverse sample of boys and girls. Three main hypotheses were explored. First, it was hypothesized that higher levels of two risk factors (i.e., delinquent peer associations and witnessing violence) at a given wave would significantly predict changes in physical aggression at the following wave, with higher levels of risk predicting higher levels of aggression. Because it was hypothesized that the current school climate would be a more direct influence on aggressive behavior than would the climate during the previous school year, higher levels of school norms supporting aggression at a given wave were expected to significantly predict concurrent changes in physical aggression. Second, it was hypothesized that adolescents entering middle school as part of families with better family functioning and with parents who they believed supported nonviolent strategies over fighting would show changes in physical aggression at each subsequent wave that reflected promotive effects. Third, interaction effects were expected such that better family functioning, higher parental support for nonviolence, and lower parental support for fighting at the start of middle school were expected to protect against the risks from delinquent peer associations, school norms supporting aggression, and witnessing violence encountered over the next three years. Differences in patterns among variables based on adolescent gender were also tested in the context of each larger hypothesis. As the existing literature has not produced consistent patterns to suggest specific hypotheses, analyses examining gender differences were exploratory.

Method

Settings

The current study was based on four waves of data collected as part of the Multisite Violence Prevention Project (MVPP), a study that was designed to evaluate violence prevention programs for middle school youth (Ikeda et al., 2004). Data were collected from the fall of 2001 to the spring of 2005 from two cohorts of middle school students in the fall and spring of sixth grade, the spring of seventh grade, and the spring of eighth grade. The adolescents were from 37 urban and rural schools in four geographic locations: Durham, North Carolina; Richmond, Virginia; Northeastern Georgia; and Chicago, Illinois. Schools within each site were randomly assigned to one of four conditions: universal intervention, selective intervention, combined universal and selective intervention, and no-intervention control (see Ikeda et al. for details).

Participants

Participants in the current study represent the targeted sample of adolescents, or those students that were identified by their sixth grade teachers as having high rates of aggression and a high level of potential influence on their peers. Adolescents were selected from two successive cohorts who entered the sixth grade at participating schools in 2001 and 2002. Two core teachers from the sixth grade identified sixth grade students that they considered to be the most aggressive, based on ratings of behaviors such as getting in physical fights, intimidating others, getting easily angered, and encouraging others to fight. When 25% of the most aggressive students in each school were identified, teachers were asked to rate the degree to which these students had an influence on their peers. Teachers used a 5-point scale to rate each student's influence in the following ways: other students listening to them about attitudes, behavior, and

values about what is important and cool; they are considered a trend-setter; other students respect them; and other students try to be like or imitate them. About 5% of sixth graders from each of two cohorts were chosen from each school, with a minimum of 10 students. The total number of adolescents selected from each school depended on the size of the school (Durham [n = 18], Richmond [n = 19], Northeastern Georgia [n = 18], Chicago [n = 12]).

A total of 1,679 adolescents across the four sites met these criteria and were eligible for participation. Parent consent and adolescent assent were obtained from 74% of the eligible adolescents ($N = 1,237$), and 98% of the consented students completed the measures ($N = 1,217$). Data were obtained from 1,128 caregivers of the participating adolescents. Adolescents in the targeted sample attended schools that were randomized to all four intervention conditions (i.e., universal intervention, selective intervention, combined universal and selective intervention, or no-intervention control). The selective intervention aimed to reduce aggression through the use of multiple family group meetings that addressed family relationships, communication, and other family components. Because it would be difficult to control for the effects of the intervention when attempting to identify the influences of family protective factors, only data from adolescents in the targeted sample and from schools not assigned to the selective intervention were analyzed in the current study. The final sample consisted of 537 adolescents and their parents. Most adolescents (65%) were male. The distribution of adolescent race and ethnicity was 64% Non-Latino African American, 13% Hispanic/Latino, 9% Non-Latino Caucasian, 5% Multiracial, 3% other, and 7% missing. The caregivers in this study's sample included approximately: 82% biological mothers, 7% biological fathers, 7% grandmothers, and 4% other caregivers (e.g., aunts, stepparents, foster parents). The median age for parents was 37 years old.

The race and ethnicity distribution for parents was approximately 71% Non-Latino African American, 12% Hispanic/Latino, 10% Non-Latino Caucasian, 2% Multiracial, and 4% missing. Most parents (68%) had earned at least a high school or equivalency degree and reported a wide range of socioeconomic statuses. At Wave 1, there were two biological parents in 33% of the homes, and an adult male that was not the biological father in 24% of the homes. At each subsequent wave, the percentage of households with two biological parents decreased and the percentage of homes with an adult male that was not the biological father increased.

Procedure

All of the procedures for the MVPP study were approved by the institutional review boards at each of the four participating universities and the CDC. Consent and assent forms were sent home with adolescents. At three sites, adolescents were given a \$5 gift card for returning the forms, regardless of whether or not they participated in the study. In order to reduce attrition rates, study staff conducted follow-up telephone calls and home visits as needed.

The first wave of data was collected from the targeted sample of sixth grade students as part of the pretest assessment in the fall of 2001 for Cohort 1 and the fall of 2002 for Cohort 2. A battery of outcome measures was administered to the adolescents and their families. Adolescents who assented to participation and whose parents consented to participation were administered a computer-assisted survey interview (CASI) either in the adolescent's home or another location that was convenient for the family. Each adolescent was provided with instructions about the study and given a brief tutorial on how to use the CASI system. At the completion of each interview, adolescents were compensated with a \$5 gift card. A caregiver for each adolescent was administered an interview in a separate room from the adolescent. Due to concerns about a

caregiver's reading ability and inexperience with laptops, research staff read the survey questions aloud to each caregiver.

Measures

Measures used in the present study represent risk variables, proposed moderators, covariates, and the dependent variable (i.e., a physical aggression composite scale). Risk variables included delinquent peer associations, school norms supporting aggression, and witnessing violence. Moderators included a family functioning class variable (created using a latent class analysis from adolescent and parent reports of family cohesion, family problem-solving, parental monitoring and involvement, and positive parenting), parental support for nonviolence, and parental support for fighting. Covariates included dummy-coded variables representing adolescent gender, race, and ethnicity, and two dummy-coded variables representing family structure. The dependent variable represented a composite measure that combined parent, teacher, and adolescent reports of the adolescents' physical aggression. The internal consistencies reported for each scale were calculated using the sample from Cohort 1 in the fall of 2001.

Risk variables.

Delinquent peer associations. The adolescent version of the Peer Deviancy measure (MVPP, 2004b; 2004c) was used to assess friends' involvement in delinquent activity. The scale was adapted from the Things Your Friends Have Done measure used in the Fast Track project (Elliott, Huizinga, & Ageton, 1985; Hurley, 2000). The respondent is asked how many of his or her friends have been involved in 10 different delinquent activities during the previous three months. Items are rated on a 5-point scale, ranging from 0 (*none of them*) to 4 (*all of them*).

Sample items include, "...skipped school without an excuse?" and "...hit someone with the idea of really hurting that person?" The internal consistency of the scores, measured by Cronbach's alpha, was .88 for the targeted student sample.

School norms supporting aggression. The School Norms for Aggression and Nonviolent Alternatives scale (MVPP, 2004a) from the cohort-wide student sample was used to form an aggregate school-level measure of norms. This measure was developed by Henry and colleagues (Henry, Cartland, Ruchcross, & Monahan, 2004) using data from a sample of students participating in the Safe to Learn Demonstration Project of the Illinois Violence Prevention Authority, a school-based violence prevention program for children and adolescents from pre-Kindergarten through high school. School norms predicted individual levels of aggression in a sample of 3,304 boys and girls from grades 2 through 11, 58.0% of whom were African American and 61% of whom lived in urban areas (Henry et al.). The measure is composed of four scales: School Norms for Aggression, School Norms for Alternatives to Aggression, Individual Norms for Aggression, and Individual Norms for Alternatives to Aggression. The School Norms for Aggression subscale was used in the current study (10 items, $\alpha = .80$). Sample items include, "How would the kids in your school feel if a kid hit someone who said something mean?" and "How would the kids in your school feel if a kid yelled at someone for no reason?" Items are scored on a 3-point scale, anchored by 1 (*disapprove*), 2 (*neutral*), and 3 (*approve*). Items were averaged across students in each class to produce an aggregate score.

Witnessing community violence. The Exposure to Violence scale (MVPP, 2004c) is a self-report measure that assesses the frequency of adolescents' witnessing violence inflicted on a stranger and on someone familiar. These subscales were based on the Children's Report of

Exposure to Violence (CREV; Cooley, Turner, & Beidel, 1995). The CREV was normed on a racially and ethnically diverse sample of rural and urban students in elementary and middle schools, and showed good test-retest reliability, internal consistency, and construct validity (Cooley et al.). In the version used in the present study, adolescents are asked to rate how often they experienced a particular event during the past six months using the following 4-point response scale: 1 (*no, never*), 2 (*one time*), 3 (*a few times*) and 4 (*many times*). This study only used the subscale pertaining to the frequency of witnessing violence against a stranger, which consists of six items including, "...seen a stranger being beaten up?" and "...seen a stranger being robbed or mugged?" Internal consistency for this subscale in the current study was .85. Scores are based on the mean response to items in each scale, with higher scores reflecting a higher degree of exposure to violence.

Moderators.

Family functioning. Measures of family relationships and parenting practices were combined to form classes of overall family functioning. Three family classes were obtained by conducting a latent profile analysis of parent- and adolescent-reports at Wave 1 (see Data Analyses section for further detail). The individual measures used to create these family classes are described in the following sections.

Family cohesion (adolescent- and parent-report). The Family Relationship Scale (Gorman-Smith, Tolan, Zelli, & Huesmann, 1996; Tolan, Gorman-Smith, Huesmann, & Zelli, 1997) measures family relationship characteristics that place adolescents at risk for developing antisocial behavior. The measure was developed for use with low-income, urban families and originally included six constructs: cohesion, beliefs about the family, deviant beliefs, support,

organization, and communication. Internal consistencies for these subscales ranged from .54 to .87 in the measure development sample (Tolan et al.). Testing higher-order factor models produced four subscales: Structure, Cohesion, Beliefs about family, and Deviant beliefs. The present study included the 12-item Family Cohesion subscale, which contains items related to family communication and closeness. Items include, “Family members like to spend free time with each other” and “Family members feel very close to each other.” Respondents are asked to rate items on a scale ranging from 1 (*not at all true*) to 4 (*almost always or always true*). Internal consistencies were .87 in the targeted student sample and .84 in the targeted parent sample.

Family problem-solving (adolescent- and parent-report). The Family Problem Solving scale was adapted from a subscale of the Family Assessment Device (FAD; Kabacoff, Miller, Bishop, Epstein, & Keitner, 1990), which measures general functioning, roles, problem-solving, communication, affective responsiveness, affective involvement, and behavior control. The Family Problem Solving scale in the present study represents family members’ ability to solve problems. It includes the six items that correlated most highly with the Family Problem Solving subscale of the original FAD. Items include, “We resolve most everyday problems around the house” and “After our family tries to solve a problem, we usually discuss whether it worked or not.” Responses are coded on a 5-point scale ranging from 0 (*never*) to 4 (*almost always*). Higher mean scores indicate greater problem solving abilities. Internal consistencies were .87 in the targeted student sample and .80 in the targeted parent sample.

Parental monitoring and involvement (adolescent- and parent-report). The 12-item Monitoring and Involvement subscale of the Parenting Practices Scale (Gorman-Smith et al., 1996) was used to assess parental involvement in daily activities and routines, as well as

knowledge of the adolescent's whereabouts. The Parenting Practices Scale was adapted from similar scales used in several studies of urban youth and families, such as the Pittsburgh Youth Study (Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1989) and the Chicago Youth Development Study (e.g., Gorman-Smith et al., 2004; Henry et al., 2001). Items use parallel structure for parent- and adolescent-report, and include, "In the past 30 days, how often did you have a friendly talk with a parent?" (adolescent-report) and "How often do you talk with [child's name] about what [he/she] had actually done during the day?" (parent-report). Response options vary according to the wording of the question, but are based on frequency (e.g., 1 [*don't know*], 2 [*less than once in a month*], 3 [*within the last 30 days, but less than once per week*], 4 [*at least once this week, but less than once per day*], 5 [*every day or almost every day*]). An exploratory factor analysis of the Monitoring and Involvement subscale using the cohort-wide sample found strong evidence that the scale was unidimensional, with an internal consistency of .85. Internal consistencies for the targeted student and parent samples used in the current study were both .80.

Positive parenting (adolescent- and parent-report). The six-item Positive Parenting subscale of the Parenting Practices Scale (see description in previous section; Gorman-Smith et al., 1996) was used to measure how often parents used positive rewards or encouragement in response to desired behaviors during the past 30 days (e.g., "say something nice about it," "give a wink or a smile," "give some reward for it"). Items use parallel structure for parent- and adolescent-report, and responses are coded on a 3-point scale that includes 1 (*almost never*), 3 (*sometimes*), and 5 (*almost always*). Internal consistencies were .81 in the targeted student sample and .78 in the targeted parent sample.

Parental support for nonviolence and fighting. Parental support for nonviolence and fighting were measured using the Parental Support for Fighting scale (Orpinas et al., 1999). This measure was not included in the latent profile analysis due to the qualitative difference between general family characteristics and perceptions about specific messages related to aggression and violence. The Parental Support for Fighting scale is a 10-item self-report measure that evaluates adolescents' perceptions of their parents' support for various solutions as a means of solving conflicts. The questionnaire was developed through focus groups with middle schools students and was first used as a single scale in the Students for Peace Project (Kelder et al., 1996; Orpinas et al., 2000; Orpinas et al., 1999). The internal consistency of the single scale as reported by Orpinas and colleagues (1999) was .81. Based on a factor analysis of this scale, two subscales were created in a previous study using data from the Multisite Violence Prevention Project (MVPP, 2004c). One subscale consists of five items reflecting support for fighting as an acceptable solution to conflict, and the other consists of five items reflecting support for nonviolent solutions. Adolescents are asked to respond *yes* or *no* to each item based on what their parents tell them about fighting. An example of a nonviolent solution is, "If someone calls you names, ignore them." An item representing support for fighting is, "If someone hits you, hit them back." Scores are based on the mean item response. The internal consistency scores were .66 for the Parental Support for Nonviolence scale and .62 for Parental Support for Fighting scale. The correlation between the two subscales was -.44, which supports the idea that the two constructs are distinct.

Covariates. Demographic covariates included the adolescent's gender, race, ethnicity, and family structure. Race was measured using a dummy-coded variable representing non-Latino

African American adolescents (the largest racial group at 64% of the sample) with all other adolescents as the reference group. Ethnicity was measured using a dummy-coded variable representing Latino American adolescents (the largest ethnic group at 13% of the sample) with all other adolescents as the reference group. Parents' reports of the individuals living in the home at each wave were used to create two dummy-coded variables representing family structure: the presence or absence of two biological parents in the home, and the presence or absence of an adult male other than the biological father in the home. These variables were included as covariates based on previous research suggesting they might be related to one or more constructs examined in the current study (e.g., Hong & Espelage, 2012; Spriggs, Iannotti, Nansel, & Haynie, 2007; Yasui & Dishion, 2007).

Physical aggression composite. The frequency of engaging in physical aggression in the past 30 days was assessed by a cross-informant composite formed by combining adolescents' self-reported ratings, teacher ratings, and parent ratings. Self-report ratings were measured using the Physical Aggression subscale ($\alpha = .80$) of the Problem Behavior Frequency Scales (PBFS; Farrell, Kung, White, & Valois, 2000). Respondents are asked to indicate how frequently they engaged in the physically aggressive behavior in the 30 days prior to the survey, using a 6-point rating scale ranging from 1 (never) to 6 (20 or more times). Higher scores represent higher levels of aggression.

Parent and teacher reports of aggressive behavior were assessed using the Aggression subscale of the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992). The BASC is a multimethod, multidimensional set of measures designed to assess the behavior problems and positive or adaptive skills. Items are rated on a 4-point scale ranging from

1 (never) to 4 (almost always). Parents completed the Parent Rating Scales for Adolescents (PRS-A) and core teachers in each school completed the Teacher Rating Scales for Adolescents (TRS-A). Items on the 11-item Aggression subscale of the parent report form reflect the adolescent's tendency to act in a hostile and threatening manner (either verbal or physical). This subscale includes the same items found on the teacher report form. Internal consistencies for the targeted student sample were .85 for both the PRS-A and TRS-A.

The creation of an adolescent-teacher-parent composite scale of physical aggression was informed by an adolescent-teacher composite scale that had been previously developed using the MVPP data (see Farrell, Henry, et al., 2010 for further information on the development of the two-source composite scale). The previously-developed composite was created using item response theory analysis (Rasch, 1980) and included five PBFS items (i.e., “threatened to hurt a teacher,” “shoved or pushed another kid,” “threatened someone with a weapon [gun, knife, club, etc.],” “hit or slapped another kid,” and “damaged school or other property that did not belong to you”), and four BASC-TRS-A items (i.e., “threatens to hurt others,” “breaks other children's things,” “hits other children”, and “bullies others”). BASC items were rescaled to 0 (*never*), 1 (*sometimes*), and 2 (*often-almost always*), and PBFS items were rescaled to 0 (*never*), 1 (*1-2 times*), and 2 (*3 or more times*) in order to form a common metric. The Kuder-Richardson reliability of the total score of the adolescent-teacher composite scale exceeded .99. To create the 13-item composite used in the current study, four PRS-A items that corresponded to the four items included from the TRS-A were added. Including parent-report items to create a composite scale of all three informants did not affect the internal consistency ($\alpha = .70$ without parent-report items and $\alpha = .69$ with parent-report items).

Data Analyses

Preliminary analyses included a series of latent profile analyses (LPA) conducted using Mplus version 7 (Muthén & Muthén, 2012) to create family functioning classes. Class membership was based on Wave 1 parent and adolescent reports of family cohesion, family problem-solving, parental monitoring and involvement, and positive parenting. To maximize the information available when deriving classes, the LPA analyses included all observations from the larger dataset that had at least one variable on these measures. This included 530 participants from the present study's sample (7 participants were not included due to missing data) and an additional 599 participants who attended schools that were randomized to the family intervention group. Because the LPA included only data collected at Wave 1, prior to the start of the intervention, there were no systematic differences between the intervention and control groups at that time. Data from the intervention group was not used for any purpose in this study beyond the creation of the family functioning classes.

Models specifying increasing numbers of latent classes were estimated using maximum likelihood estimates with robust standard errors. The relative fits of the models were evaluated based on the interpretability of the class solutions, and the following model fit statistics: the Bayesian Information Criteria (BIC), and the Vuong-Lo-Mendell-Rubin Likelihood Ratio Test (VLMR; Lo, Mendell, & Rubin, 2001). The BIC takes into account both model fit and the number of parameters, and research suggests it performs well in determining the appropriate number of classes (Nylund, Asparouhov, & Muthén, 2007). Smaller values indicate a better model fit. The VLMR aids in the comparison of models with two different class sizes, in that it tests the fit of the current model with k classes compared with a model with $k-1$ classes.

Significant probability values on the VLMR suggest that the model being tested (i.e., with a higher number of classes) is a better fitting model than a model with fewer classes (Nylund et al.). Class membership was assigned based on estimated posterior probabilities that indicated individuals' chances of being in each of the latent classes.

Main analyses, which tested the hypothesized relations among putative risk factors, protective factors, and aggression, were conducted using Mplus. These analyses computed standard errors and a chi-square test of model fit that accounted for complex survey data (i.e., the nesting of individual adolescents' data within age cohorts and schools, as well as the non-independence of observations associated with a longitudinal study design) and for the non-normal distribution of variables. Missing data were addressed using full information maximum likelihood estimation, such that standard errors were computed using a sandwich estimator and were robust to non-independence and non-normality (i.e., MLR).

In each model, a variable representing age cohorts within schools was designated as a cluster variable to account for nesting. The decision to group individual adolescents based on age cohort and school was based on the assumption that the school environment would differ not only across schools, but also across school years. In other words, students who enter their school in the same year may experience a more similar school environment than students who enter the same school in a different year (see Henry et al., 2011 for additional justification). Covariates at each wave included gender, race (a dummy-coded variable representing non-Latino African American adolescents with all other adolescents as the reference group), ethnicity (a dummy-coded variable representing Latino American adolescents with all other adolescents as the reference group) and family structure (two dummy-coded variables representing the presence or

absence of two biological parents in the household and the presence or absence of another adult male in the household). To facilitate interpretation, all covariates, individual-level risk variables (i.e., delinquent peer associations and witnessing violence) and protective variables were centered by subtracting the grand mean of scores at each wave from each individual's score. The cluster-level variable representing school norms for aggression was centered using the group mean (i.e., the mean for each cohort within each school). The overall model fit was evaluated based on the chi-square test of model fit (χ^2), comparative fit index (CFI), and root mean square error of approximation (RMSEA). Guidelines for good model fit included a ratio of χ^2 to degrees of freedom below 2, a CFI of greater than .95, and an RMSEA of less than .08 (Tabachnick & Fidell, 2007). Wald tests of parameter constraints were also used to test the overall significance of groups of parameters, in order to reduce the likelihood of Type I Error. For the models including family functioning class, new parameters were created to test differences between the two classes that were not serving as the reference group.

The first set of models included a separate path model to determine the impact of each hypothesized risk variable on changes in physical aggression (see Figure 1). The models for delinquent peer associations and witnessing violence were cross-lagged autoregressive path models that tested the degree to which risk at a given wave predicted changes in physical aggression at the following wave. They also tested reciprocal relations by examining the extent to which aggression predicted subsequent changes in the risk variable. These models controlled for demographics, Wave 1 levels of risk and aggression, and levels of risk and aggression at the previous waves, and they included correlations among the variables measured within each wave.

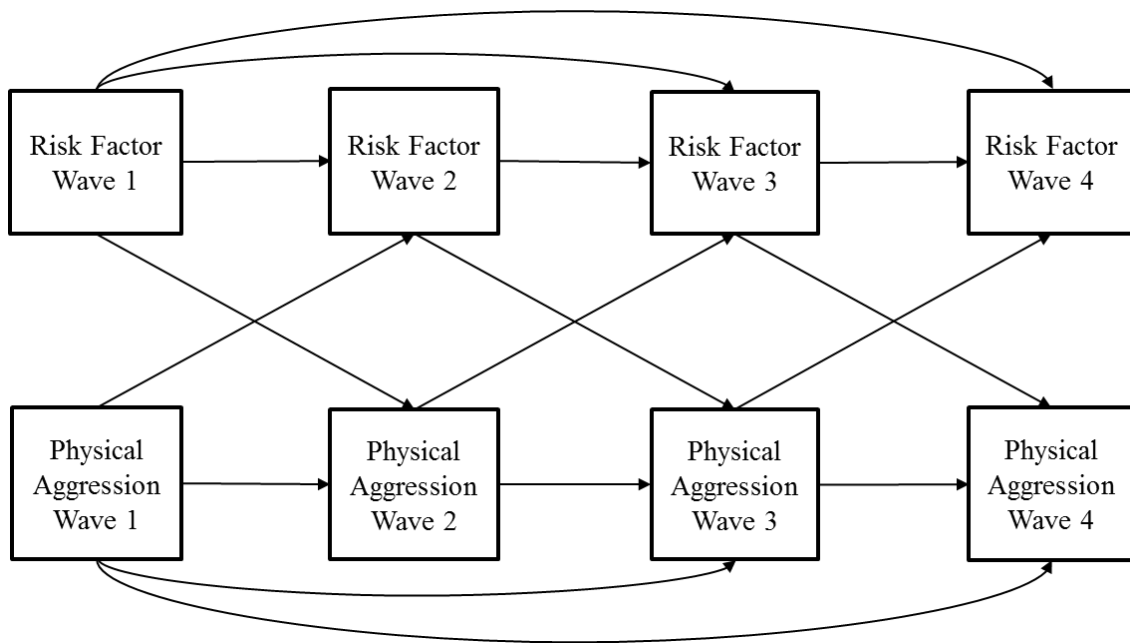


Figure 1. Autoregressive path model examining the reciprocal relation between proposed risk factors and adolescents' aggression. This model was used for delinquent peer associations and witnessing violence. Demographic covariates and correlations between measures within each wave were included in the models, but are not shown in the figure.

The model testing the risk associated with school norms supporting aggression differed slightly to reflect a conceptual difference. Because it was hypothesized that the current school climate would be a more direct influence on aggressive behavior than would the climate during the previous school year, this model tested the influences of school norms on aggression within each wave, as opposed to testing cross-lagged relations across waves (see Figure 2).

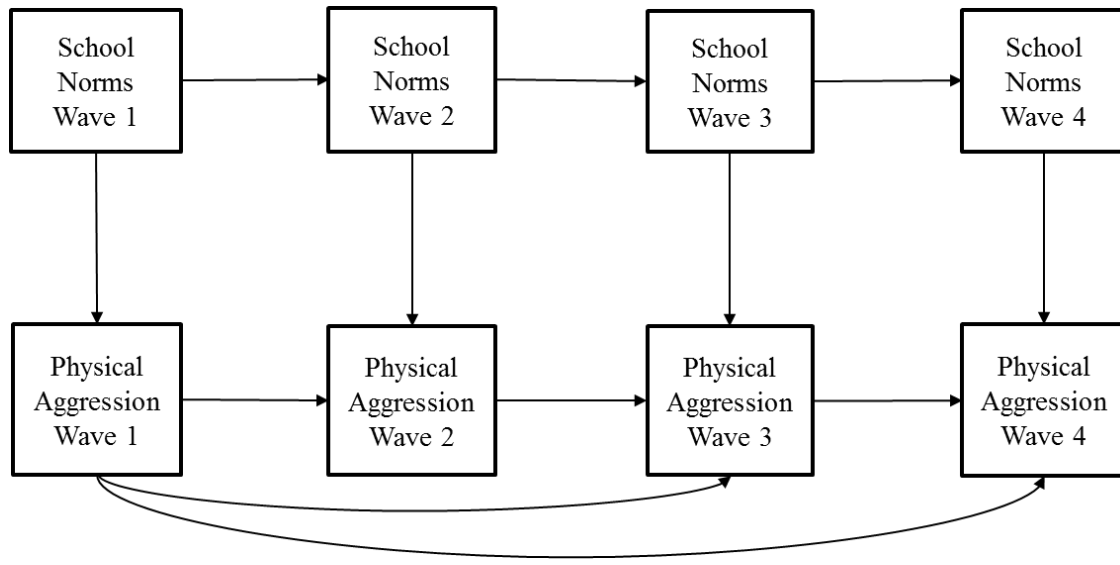


Figure 2. Path model examining the relation between school norms supporting aggression as a proposed risk factor and adolescents' aggression. Demographic covariates were included in the model but are not shown in the figure.

The second set of models tested the hypothesized promotive effects of family factors measured at Wave 1 on physical aggression at each wave (see Figure 3). Like the risk models, the promotive models controlled for demographics, Wave 1 aggression, and aggression at previous waves. The model that tested family functioning class as a promotive factor required dummy-coding of the family class variable.

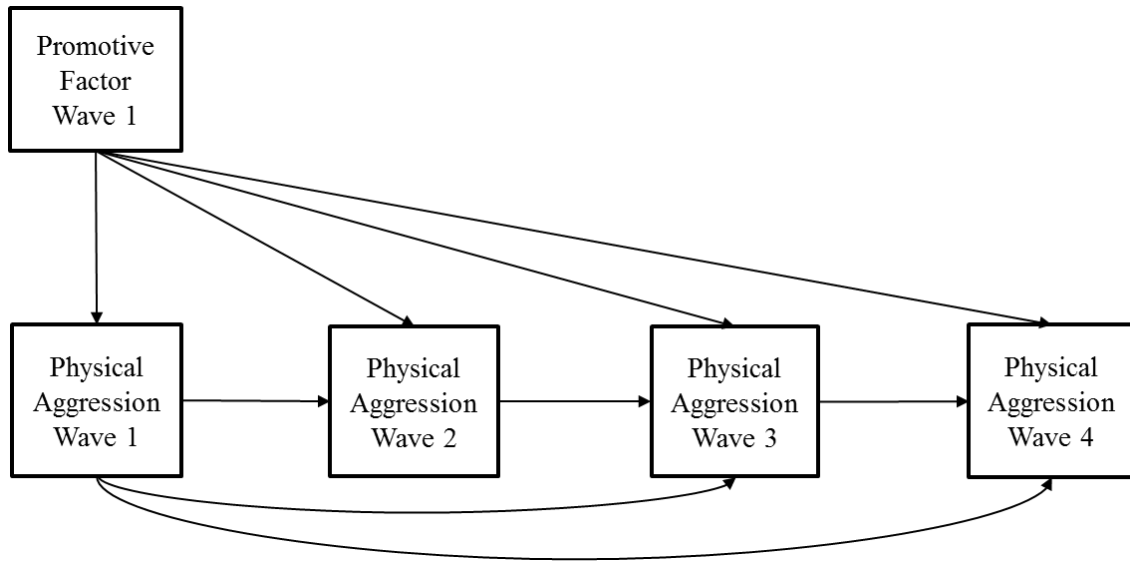


Figure 3. Path model examining the relation between proposed promotive factors and adolescents' aggression. This model was used for family functioning class, parental support for nonviolence, and parental support for fighting. Demographic covariates were included in the models but are not shown in the figure.

The third set of models tested the extent to which each of the three hypothesized protective factors – family functioning class, high parental support for nonviolence, and low parental support for fighting – at Wave 1 moderated subsequent relations between each of the risk variables and physical aggression (See Figure 4). Moderation was only tested for hypothesized risk variables if the initial models demonstrated significant risk for physical aggression.

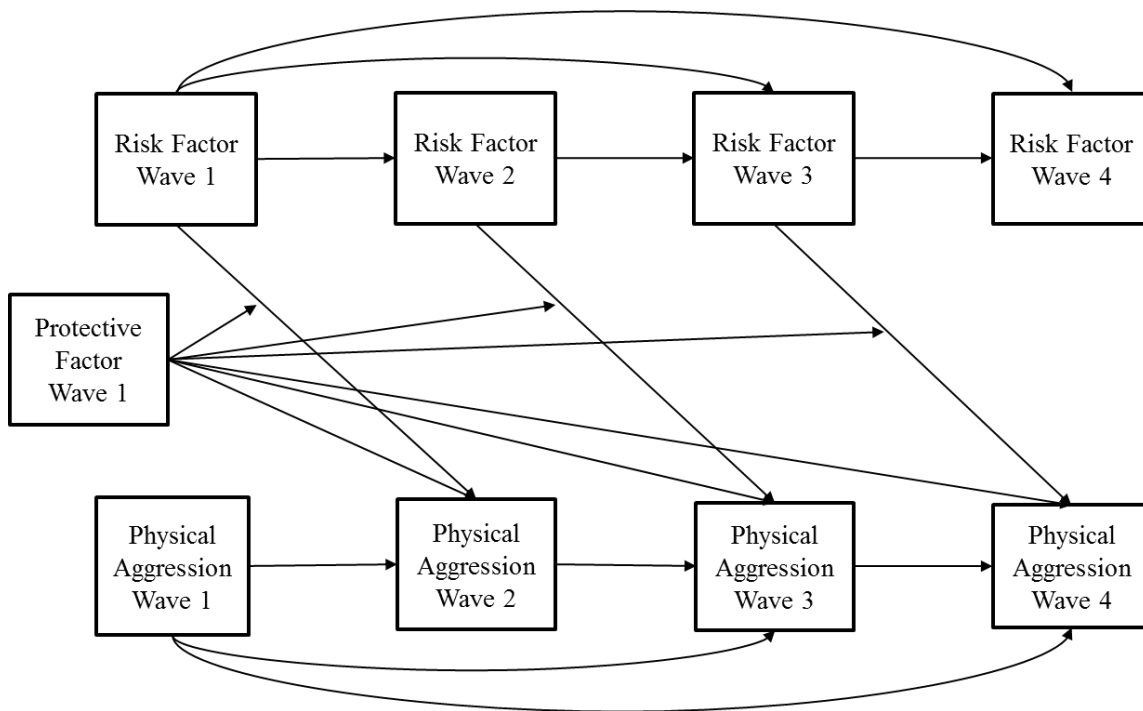


Figure 4. Path model examining the interactions between risk factors, proposed protective factors, and adolescents' aggression. Demographic covariates and correlations between measures within each wave were included in the models but are not shown in the figure.

Gender differences were explored using multiple group analyses that tested the effects of each risk, promotive, and protective factor separately for boys and girls. For each path analysis, a model in which corresponding regression coefficients were constrained to be equal across boys and girls was compared to an unconstrained model that allowed for differences based on gender. Models were compared using a method proposed by Satorra and Bentler (2001) for chi-square difference testing. This method uses a scaling correction factor in models using MLR estimation to allow for the model fit statistics of nested models to be directly compared.

Results

Latent Profile Analysis

A series of latent profile analyses (LPA) were conducted using Mplus to create family functioning classes based on Wave 1 parent and adolescent reports of family cohesion, family problem-solving, parental monitoring and involvement, and positive parenting. As previously noted, although data from participants in the selective intervention and in the combined universal and selective intervention schools were used to inform the creation of the family classes, all further results and discussion pertaining to these classes include only participants from the universal intervention and no-intervention control schools.

Solutions were identified for one, two, three, and four groups. Comparisons of each supported a model with three latent classes. Table 1 displays fit statistics for the models.

Table 1
Fit Statistics for Latent Profile Models of Family Functioning

Number of classes	BIC	VLMR Likelihood Ratio Test H0 Loglikelihood Value
One	19,021	
Two	17,839	-9455***
Three	17,457	-8832***
Four	17,277	-8609

Note. BIC = Bayesian Information Criteria; VLMR = Vuong-Lo-Mendell-Rubin.

*** $p < .001$

The BIC value of the three-class model was lower than that of the two-class model and one-class model. The VLMR indicated that the three-class model fit the data significantly better than the two-class model at ($p < .001$). The four-class model had the lowest BIC; however, the VLMR was not significant ($p = 0.313$), suggesting that this model was not a significant improvement

over the three-class model. Further, one of the classes that emerged from the four-class solution was relatively small (8% of the sample) and the pattern of results was not clearly interpretable.

The pattern of means for the three-class solution (represented by z-scores) is presented in Figure 5. The first class, designated the Parent-reported Low Family Functioning (P-LFF) class, represented families in which parents reported low levels of family functioning but adolescents reported average or only slightly below-average levels ($n = 108$; 20% of the study sample). The second class, designated the Adolescent-reported Low Family Functioning (A-LFF) class, included adolescents who reported low levels of family functioning, but whose parents had perceptions of average or slightly above-average functioning ($n = 93$; 18%). The third class, referred to as the Well-Functioning class, consisted of both adolescents and parents who reported above-average levels of functioning on all variables ($n = 329$; 62%).

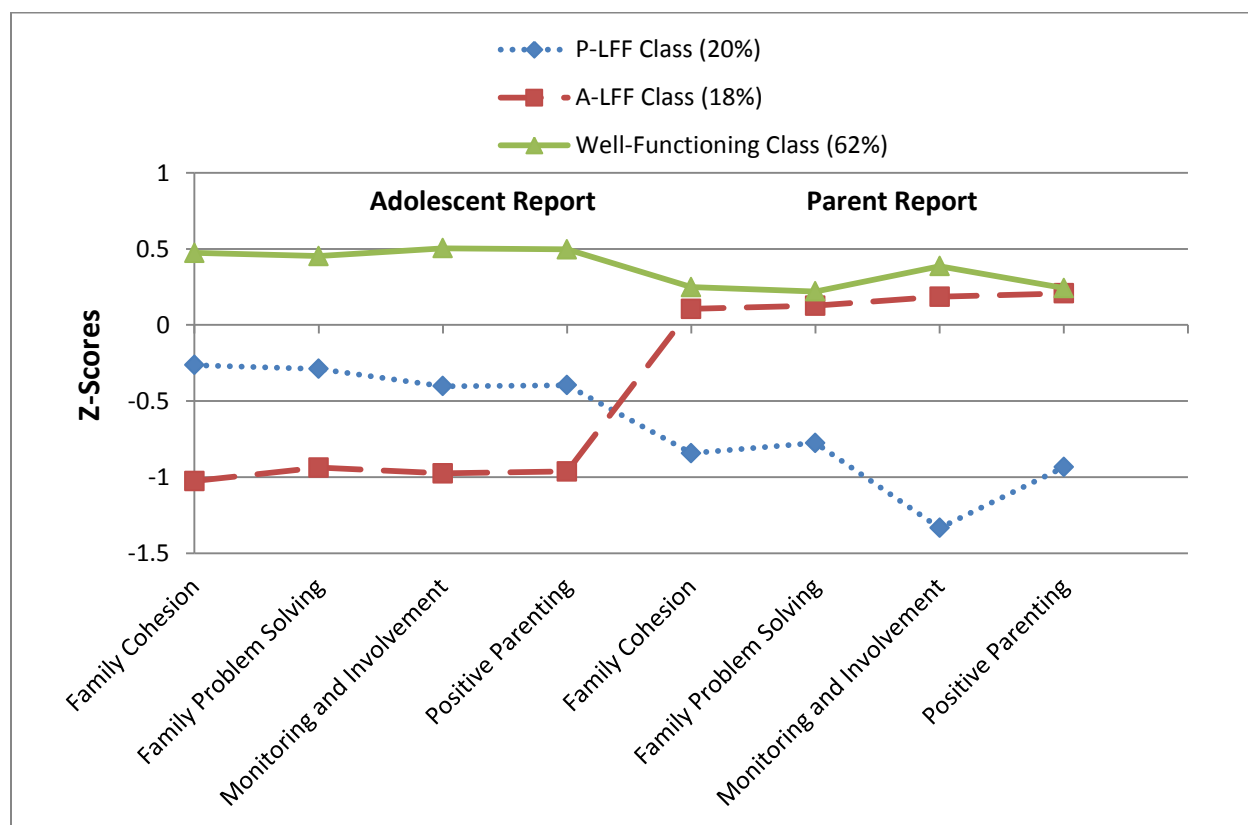


Figure 5. Three-class solution of family functioning, representing the mean levels of z scores for each variable used in the LPA. P-LFF = Parent-reported Low Family Functioning; A-LFF = Adolescent-reported Low Family Functioning. The variables are ordered such that the first four represent the adolescent-report measures and the second four represent the parent-report measures. $N = 530$, which corresponds to all of the participants from the current study that were not excluded from the LPA due to missing data.

Differences among the three classes were examined in SPSS using a one-way between-groups analysis of variance followed by post-hoc multiple comparisons using the Bonferroni correction. The means and standard deviations of the family variables used in the LPA are reported in Table 2. The three classes significantly differed from each other on all variables included in the LPA, with one main exception: parent ratings in A-LFF families were not significantly different from parent ratings in Well-Functioning families.

Table 2
Centered Means and Standard Deviations of Family Functioning Variables by Family Functioning Class

Measure	P-LFF class		A-LFF class		Well-functioning class	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Adolescent-report						
Family cohesion	-0.16	0.58	-0.84	0.59	0.30	0.45
Family problem-solving	-0.31	0.85	-1.00	0.88	0.38	0.68
Monitoring & involvement	-0.39	0.71	-0.86	0.74	0.38	0.62
Positive parenting	-0.45	0.95	-1.01	0.93	0.45	0.62
Parent-report						
Family cohesion	-0.43	0.48	0.06 ^a	0.40	0.13 ^a	0.41
Family problem-solving	-0.54	0.62	0.08 ^a	0.66	0.15 ^a	0.63
Monitoring & involvement	-0.84	0.46	0.13 ^a	0.40	0.25 ^a	0.34
Positive parenting	-0.69	0.64	0.18 ^a	0.59	0.18 ^a	0.59

Note. P-LFF = Parent-reported Low Family Functioning; A-LFF = Adolescent-reported Low Family Functioning. P-LFF class $n = 102-108$; A-LFF class $n = 89-93$; Well-Functioning class $n = 315-327$. Means with the same superscript are not significantly different at $p < .001$

Descriptive Statistics

Means and standard deviations for risk factors, protective factors aside from family functioning, and the composite measure of physical aggression are reported in Table 3.

Table 3
Uncentered Means, Standard Deviations and Correlations Across Waves for Time-Varying Demographics, Risk Variables, Parental Support Variables, and Physical Aggression

Measure	Wave 1			Wave 2			Wave 3			Wave 4	
	<i>M</i>	<i>SD</i>	<i>r^a</i>	<i>M</i>	<i>SD</i>	<i>r^b</i>	<i>M</i>	<i>SD</i>	<i>r^c</i>	<i>M</i>	<i>SD</i>
Biological parents home	0.33	0.47	0.66	0.31	0.46	0.65	0.28	0.45	0.71	0.24	0.43
Other male in home	0.24	0.43	0.42	0.24	0.43	0.44	0.26	0.44	0.63	0.29	0.45
Delinquent peers	0.36	0.45	0.35	0.38	0.48	0.39	0.43	0.54	0.42	0.48	0.55
School norms aggression ^d	1.75	0.13	0.83	1.92	0.14	0.86	2.04	0.14	0.84	2.08	0.13
Witnessing violence	1.36	0.56	0.39	1.37	0.61	0.29	1.36	0.60	0.46	1.39	0.63
Parent support nonviolent	0.77	0.27									
Parent support fighting	0.27	0.25									
Physical aggression	0.59	0.34	0.68	0.62	0.35	0.61	0.54	0.31	0.57	0.51	0.32

Note. *N* = 537 except where noted. *r^a* = Correlation between W1 and W2 values of each time-varying measure; *r^b* = Correlation between W2 and W3; *r^c* = Correlation between W3 and W4.

^d Group-mean centered variable (*N* = 36).

To test whether the mean of physical aggression and the means of each risk factor significantly increased or decreased over time, new parameters were created in Mplus to represent the differences in the means at each wave. Levels of aggression did not significantly change from Wave 1 to Wave 2. Levels of aggression significantly decreased from Wave 2 to Wave 3 ($B = -0.09$, $Z\text{-test} = -5.21$, $p < .001$). There was no significant change from Wave 3 to Wave 4. Overall, levels of aggression significantly decreased over the duration of the study (i.e., from Wave 1 to Wave 4; ($B = -0.08$, $Z\text{-test} = -4.87$, $p < .001$). Comparing means on the delinquent peer associations measure suggests a significant increase across the duration of the study ($B = 0.11$, $Z\text{-test} = 3.05$, $p = .002$), although none of the incremental changes between

concurrent waves were significant. Increases in school norms supporting aggression were significant from Wave 1 to Wave 4 ($B = 0.33$, $Z\text{-test} = 16.87$, $p < .001$), as were the incremental changes between concurrent waves. There were no significant changes in levels of witnessing violence over time.

Correlations among variables. Mplus was used to estimate intercorrelations among variables at each wave, taking into account missing data and the nesting of data in schools and cohorts. To simplify the reporting and interpretation of correlations at every wave, the extent to which correlations among variables were consistent across waves was evaluated. A fully-saturated model in which the variances and covariances among variables were estimated separately for each wave was compared to a constrained model in which corresponding variances and covariances were constrained to the same values across waves. The constrained model fit the data moderately well, $\chi^2(117) = 170.41$, $p < .001$, $CFI = .99$, $RMSEA = .03$, suggesting that the pattern of relations among variables was fairly consistent across waves.

Table 4

Constrained Correlations among Variables (Excluding Family Functioning Class)

	1	2	3	4	5	6	7	8	9	10	11
1. Male gender	-										
2. African American	-.03	-									
3. Hispanic/Latino	.04	-.59***	-								
4. Biological parents in home	.07	-.14***	.09*	-							
5. Other adult male in home	-.06	.06	-.01	-.38***	-						
6. Delinquent peers	.00	.05	-.05	-.07**	.07*	-					
7. School norms aggression ^a	-.06	.22**	-.19**	-.10***	-.01	.05	-				
8. Witnessing violence	.07*	.03	.03	-.06*	.03	.34***	.04	-			
9. Parent support nonviolence	-.09	-.06	.01	.08	.00	-.23***	.01	-.17**	-		
10. Parent support fighting	.01	.05	-.03	-.09**	.01	.31***	.05	.19***	-.52***	-	
11. Physical aggression	.05	.11**	-.05	-.13***	.08**	.35***	.05	.32***	-.25***	.29***	-

Note. $N = 537$. Estimates are based on a model in which the variances and covariances among variables within each wave were constrained to be equal across waves. No correlations involving parental support for nonviolence or fighting were constrained, as only Wave 1 values were used in this study. All demographic variables were dummy-coded.

^aGroup-mean centered variable.

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

Intercorrelations among variables based on the constrained model are reported in Table 4. As expected, the frequency of physical aggression was significantly moderately correlated with delinquent peer associations ($r = .35, p < .001$) and witnessing violence ($r = .32, p < .001$). Delinquent peer associations and witnessing violence were significantly moderately correlated with each other ($r = .34, p < .001$). School norms supporting aggression were not significantly correlated with individual levels of physical aggression or any of the other risk or protective factors. As expected, physical aggression was negatively correlated with parental support for nonviolence ($r = -.25, p < .001$), and positively correlated with parental support for fighting ($r = .29, p < .001$). Adolescents who reported hearing parental support for nonviolence were significantly less likely to report delinquent peer associations ($r = -.23, p < .001$) or witnessing community violence ($r = -.17, p = .001$). Conversely, adolescents who reported hearing parental support for fighting were more likely to report delinquent peer associations ($r = .31, p < .001$) and to report witnessing violence ($r = .19, p < .001$). Intercorrelations among demographic variables and risk factors suggested some small but significant effects. For example, African American adolescents were more likely to attend schools with greater norms supporting aggression ($r = .22, p = .001$), whereas Latino adolescents and adolescents living with two biological parents were less likely to attend schools with aggressive norms ($r = -.19, p = .001$ and $r = -.10, p < .001$, respectively). African American adolescents were less likely to live in a household with two biological parents ($r = -.14, p < .001$). Several additional demographic variables were significantly correlated with risk factors and with physical aggression, though all were fairly low in magnitude ($r_s = .06$ to $.13$).

Correlations between each variable and the same variable at the next wave suggest that reports of physical aggression (r_s .57 to .68), and delinquent peer associations ($r_s = .35$ to .42) were moderately to highly stable over time. The school-level variable representing norms supporting aggression was highly stable ($r_s = .83$ to .86), whereas reports of witnessing violence were more variable ($r_s = .29$ to .46). These values are reported along with means and standard deviations in Table 3.

Intraclass correlations. This study's sample included individual adolescents who were nested within clusters of age cohort and school. The average cluster size in the current study was just under 15 individuals. Intraclass correlations represent the proportion of variance in individual scores that is accounted for by these differences across clusters. Barcikowski (1981) cautioned that there is a higher probability of making a Type I error with greater intraclass correlations and larger cluster sizes. He found inflated significance values with intraclass correlations as small as .01 and with average cluster sizes as low as 10. The relatively high intraclass correlations for variables in the current study support the use of analyses that take into account the similarities of adolescents within the same cluster (see Table 5).

Table 5

Intraclass Correlations for Continuous, Individual-level Variables by Wave

Measure	Wave 1	Wave 2	Wave 3	Wave 4
Delinquent peer associations	0.04	0.04	0.06	0.04
Witnessing violence	0.10	0.08	0.08	0.10
Parental support for nonviolence	0.04			
Parental support for fighting	0.07			
Physical aggression	0.11	0.12	0.13	0.06

Note. $N = 537$. Average cluster size = 14.92.

Relations between Risk Factors and Physical Aggression

Delinquent peer associations. The first risk model included cross-lagged regressions that tested the degree to which levels of delinquent peer associations at each wave predicted changes in adolescents' frequency of physical aggression at the following wave. This model also included exploratory, reciprocal paths that tested the impact of aggression on changes in delinquent peer associations. Results are reported in Table 6 and graphically depicted in Figure 6. The overall model of the relations among delinquent peer associations and physical aggression fit the data well, $\chi^2(56) = 62.25, p = 0.263, CFI = .99, RMSEA = .01$. As was the case in most of the models in the current study, adolescents with both biological parents in the home at Wave 1 had significantly lower levels of aggressive behavior than those without both parents in the home ($\beta = -.15, p = .003$). In this model, African American adolescents reported higher levels of delinquent peer associations ($\beta = .11, p = .048$). No demographic variables predicted changes in either aggression or delinquent peer associations over time.

Results of a Wald test of the overall impact of delinquent peer associations on aggression across all waves, after controlling for demographics and prior levels of aggression, were significant, $\chi^2(3) = 19.44, p < .001$. As expected, affiliating with delinquent peers was a significant risk factor for aggression across all waves. The influence of Wave 1 delinquent peers on changes in aggression at Wave 2 indicated higher levels of aggression for adolescents with higher levels of delinquent peer associations ($\beta = .11, p = .004$). Although the mean for physical aggression significantly decreased from Wave 2 to Wave 3, there was less of a decrease for adolescents with higher levels of delinquent peer associations ($\beta = .14, p = .006$). Delinquent

peer associations at Wave 3 were also associated with higher levels of aggression at Wave 4 ($\beta = .17, p = .012$).

Table 6

Standardized Parameter Estimates and Standard Errors for Regression of Physical Aggression on Delinquent Peer Associations and Demographics, and Reciprocal Model

	W1 dependent variable	W2 dependent variable	W3 dependent variable	W4 dependent variable
<u>Dependent variable: physical aggression</u>				
Male gender	0.07 (0.05)	0.00 (0.03)	0.02 (0.04)	0.00 (0.04)
Hispanic/Latino	-0.01 (0.06)	0.06 (0.05)	-0.03 (0.05)	0.03 (0.06)
African American	0.07 (0.08)	0.06 (0.04)	0.00 (0.05)	0.07 (0.07)
Biological parents in home	-0.15** (0.05)	0.03 (0.03)	-0.06 (0.04)	-0.02 (0.04)
Other adult male in home	0.02 (0.04)	-0.04 (0.04)	0.06 (0.06)	0.01 (0.05)
Wave 1 aggression		0.66*** (0.03)	0.17* (0.07)	0.33*** (0.05)
Prior wave aggression			0.44*** (0.06)	0.31*** (0.06)
Prior wave delinquent peers		0.11** (0.04)	0.14** (0.05)	0.17* (0.07)
R ²	.04 (0.02)	.48*** (0.04)	.42*** (0.05)	.42*** (0.04)
<u>Dependent variable: delinquent peer associations</u>				
Male gender	0.02 (0.04)	-0.01 (0.04)	0.01 (0.04)	-0.03 (0.05)
Hispanic/Latino	-0.02 (0.05)	-0.01 (0.04)	-0.05 (0.05)	0.02 (0.06)
African American	0.11* (0.06)	0.05 (0.06)	-0.11 (0.06)	-0.02 (0.05)
Biological parents in home	-0.01 (0.05)	-0.07 (0.04)	0.02 (0.04)	0.02 (0.05)
Other adult male in home	0.05 (0.05)	-0.03 (0.05)	0.09 (0.05)	0.04 (0.05)
Wave 1 delinquent peers			0.10* (0.05)	0.09 (0.06)
Prior wave delinquent peers		0.32*** (0.06)	0.28*** (0.07)	0.31*** (0.05)
Prior wave aggression		0.09 (0.05)	0.21** (0.06)	0.17** (0.06)
R ²	.02 (0.01)	.14** (0.04)	.21*** (0.04)	.20*** (0.04)

Note. $N = 537$. Standard errors are in parentheses.

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

The overall impact of the reciprocal paths representing the impact of aggression on delinquent peer associations after controlling for demographics and prior levels of delinquent peer associations was also significant, Wald $\chi^2(3) = 22.08, p < .001$. An examination of individual path coefficients indicated that the influence of Wave 1 aggression on changes in delinquent peer associations at Wave 2 was not significant ($\beta = .09, p = .075$). Aggression was related to significant changes in delinquent peer associations at Wave 3 and at Wave 4, however, such that higher levels of aggression were related to higher levels of delinquent peer associations over time ($\beta = .21, p = .001$ and $\beta = .17, p = .005$, respectively).

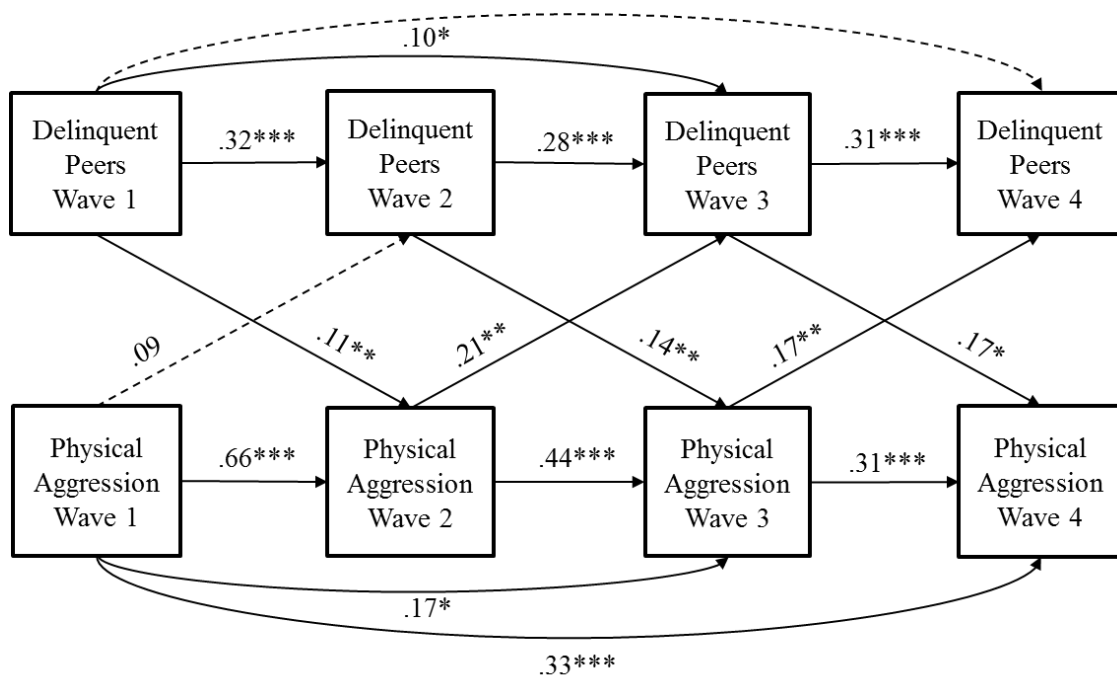


Figure 6. Autoregressive path model examining the reciprocal relation between delinquent peer associations and physical aggression. Demographic covariates and correlations between measures within each wave were included in the models, but are not shown in the figure. Non-significant paths are represented by dashed lines.

Note. $N = 537$

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

School norms supporting aggression. This model tested the concurrent influence of school norms supporting aggression on individual adolescents' aggressive behavior within each wave, rather than predicting changes at subsequent waves. The overall model of the relations among school norms supporting aggression and physical aggression fit the data well, $\chi^2(70) = 74.79, p = 0.326, CFI = 1.00, RMSEA = .01$. Results of a Wald test examining the risk associated with school norms supporting aggression were not significant, $\chi^2(4) = 4.83, p = .305$. These results are reported in Table 7.

Table 7
Standardized Parameter Estimates and Standard Errors for Regression of Physical Aggression on School Norms Supporting Aggression and Demographics

	W1 physical aggression	W2 physical aggression	W3 physical aggression	W4 physical aggression
Male gender	0.08 (0.05)	0.01 (0.04)	0.02 (0.04)	0.00 (0.05)
Hispanic/Latino	0.00 (0.06)	0.05 (0.05)	-0.03 (0.05)	0.03 (0.06)
African American	0.06 (0.08)	0.05 (0.04)	0.03 (0.06)	0.05 (0.06)
Biological parents in home	-0.15** (0.05)	0.03 (0.03)	-0.06 (0.04)	-0.03 (0.04)
Other adult male in home	0.02 (0.04)	-0.03 (0.04)	0.07 (0.06)	0.02 (0.05)
Wave 1 aggression		0.68*** (0.03)	0.16* (0.07)	0.33*** (0.05)
Prior wave aggression			0.49*** (0.04)	0.39*** (0.05)
Concurrent school norms	0.03 (0.05)	0.04 (0.04)	-0.05 (0.05)	0.02 (0.04)
R ²	.04 (0.02)	.47*** (0.04)	.41*** (0.05)	.40*** (0.04)

Note. $N = 537$ adolescents nested in 36 clusters (defined by cohort and school). Standard errors are in parentheses.

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

Witnessing community violence. The overall model testing the relations between witnessing violence and physical aggression fit the data well, $\chi^2(56) = 57.51, p = .419, CFI = 1.00, RMSEA = .01$ (see Table 8 and Figure 7). African American and Latino adolescents initially reported higher levels of witnessing violence, but these demographics did not predict

changes in witnessing violence across waves. As hypothesized, a Wald test of the overall impact of witnessing violence on adolescents' aggression across all waves, after controlling for demographics and prior levels of aggression, was significant, $\chi^2(3) = 14.45, p = .002$.

Table 8

Standardized Parameter Estimates and Standard Errors for Regression of Physical Aggression on Witnessing Violence and Demographics, and Reciprocal Model

	W1 dependent variable	W2 dependent variable	W3 dependent variable	W4 dependent variable
<u>Dependent variable: physical aggression</u>				
Male gender	0.07 (0.05)	0.00 (0.03)	0.01 (0.04)	-0.00 (0.04)
Hispanic/Latino	0.00 (0.06)	0.05 (0.05)	-0.04 (0.05)	0.02 (0.06)
African American	0.07 (0.08)	0.05 (0.04)	0.02 (0.06)	0.06 (0.06)
Biological parents in home	-0.16** (0.05)	0.02 (0.03)	-0.06 (0.04)	-0.03 (0.03)
Other adult male in home	0.02 (0.04)	-0.03 (0.04)	0.07 (0.06)	0.02 (0.05)
Wave 1 aggression		0.67*** (0.03)	0.17** (0.07)	0.29*** (0.05)
Prior wave aggression			0.45*** (0.05)	0.38*** (0.05)
Prior wave witness violence		0.05 (0.04)	0.11** (0.04)	0.07 (0.05)
R ²	.04 (0.02)	.47*** (0.04)	.41*** (0.05)	.39*** (0.04)
<u>Dependent variable: witnessing violence</u>				
Male gender	0.06 (0.05)	0.03 (0.04)	0.07 (0.04)	0.04 (0.04)
Hispanic/Latino	0.11* (0.05)	0.04 (0.05)	0.09 (0.05)	-0.05 (0.05)
African American	0.10* (0.05)	0.01 (0.05)	0.03 (0.05)	-0.03 (0.05)
Biological parents home	-0.06 (0.04)	0.00 (0.05)	-0.07 (0.04)	0.03 (0.05)
Other adult male in home	-0.05 (0.05)	-0.01 (0.06)	0.09* (0.04)	-0.07 (0.04)
Wave 1 witnessing violence		0.35*** (0.06)	0.19* (0.08)	0.21** (0.07)
Prior wave witness violence			0.13* (0.06)	0.40*** (0.07)
Prior wave aggression		0.15*** (0.04)	0.22*** (0.05)	0.04 (0.05)
R ²	.02 (0.01)	.18*** (0.05)	.20*** (0.04)	.27*** (0.06)

Note. $N = 537$. Standard errors are in parentheses.

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

However, an examination of the individual regression coefficients at each wave indicated that the risk of witnessing violence was only significant at Wave 3 ($\beta = .11, p = .006$), such that higher levels of witnessing violence at Wave 2 predicted higher levels of aggression at Wave 3. Contrary to hypotheses, witnessing violence did not predict changes in aggression at Wave 2 ($\beta = .05, p = .243$) or at Wave 4 ($\beta = .07, p = .120$).

A Wald test of the overall impact of aggression on witnessing violence across all waves, after controlling for demographics and prior levels of witnessing violence, was also significant, Wald $\chi^2(3) = 34.01, p < .001$. The initial influence of aggression at Wave 1 on changes in witnessing violence at Wave 2 was significant ($\beta = .15, p < .001$). Adolescents with higher levels of aggression at Wave 2 also reported higher levels of witnessing violence at Wave 3 ($\beta = .22, p < .001$). Levels of aggression did not significantly predict changes in witnessing violence from Wave 3 to Wave 4 ($\beta = .04, p = .426$).

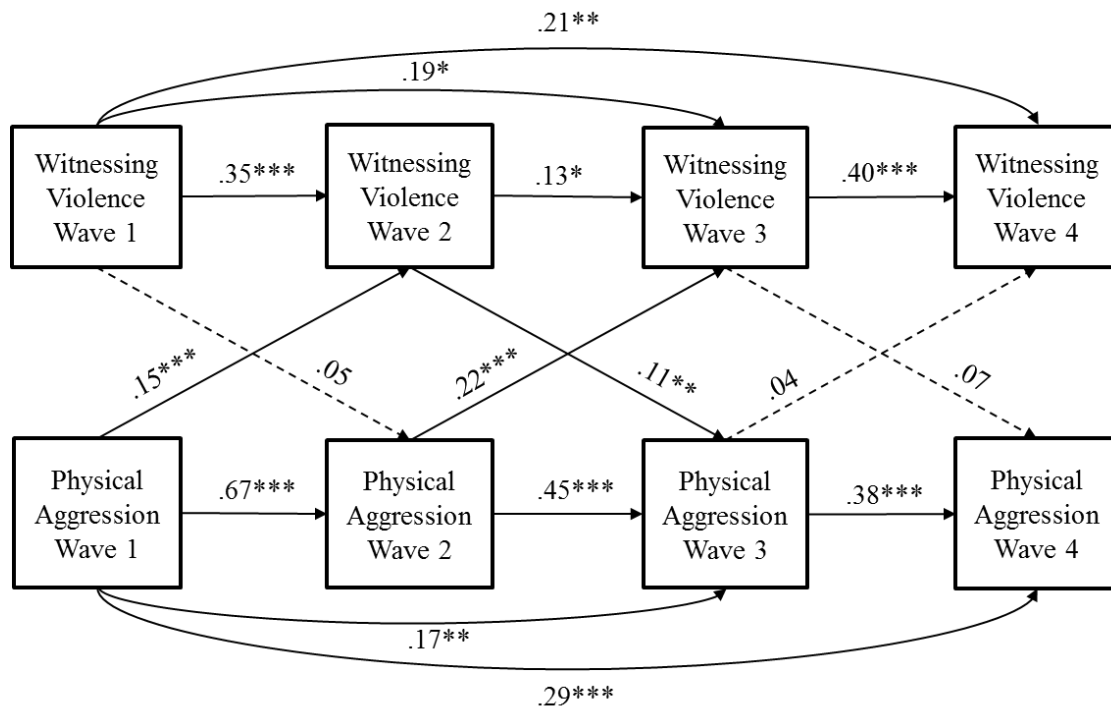


Figure 7. Autoregressive path model examining the reciprocal relation between witnessing violence and physical aggression. Demographic covariates and correlations between measures within each wave were included in the models, but are not shown in the figure. Non-significant paths are represented by dashed lines.

Note. $N = 537$

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

Relations between Promotive Factors and Physical Aggression

Analyses were next conducted to examine the promotive effects of each family variable. Concurrent relations between each of the family factors and physical aggression at Wave 1 were explored, as were relations between each Wave 1 family factor and changes in aggression over time.

Family functioning class. The model for family functioning class differed somewhat from the models for the continuous variables in that the Wald tests examined differences among the three classes on changes in aggression within each wave. For these analyses, the P-LFF and A-LFF classes were dummy-coded and the Well-Functioning class served as the reference group.

New parameters were created in order to compare the two classes that were not serving as the reference group. The overall model of the promotive effects of family functioning class fit the data well, $\chi^2(25) = 26.81, p = .365, CFI = 1.00, RMSEA = .01$ (see Table 9).

Table 9

Standardized Parameter Estimates and Standard Errors for Regression of Physical Aggression on Family Functioning Class and Demographics

	W1 physical aggression	W2 physical aggression	W3 physical aggression	W4 physical aggression
Male gender	0.07 (0.05)	0.00 (0.04)	0.02 (0.04)	0.00 (0.05)
Hispanic/Latino	-0.01 (0.06)	0.05 (0.04)	-0.03 (0.05)	0.03 (0.06)
African American	0.06 (0.08)	0.05 (0.04)	0.02 (0.05)	0.06 (0.06)
Biological parents home	-0.12** (0.05)	0.03 (0.03)	-0.05 (0.04)	-0.03 (0.03)
Other adult male home	0.02 (0.03)	-0.04 (0.04)	0.07 (0.06)	0.01 (0.05)
Wave 1 aggression		0.67*** (0.03)	0.16* (0.06)	0.33*** (0.05)
Prior wave aggression			0.48*** (0.05)	0.39*** (0.05)
P-LFF class	0.20*** (0.05)	0.09* (0.04)	0.08 (0.04)	0.02 (0.06)
A-LFF class	0.07 (0.05)	-0.01 (0.03)	0.06 (0.04)	-0.08* (0.04)
R ²	.07** (0.03)	.48*** (0.04)	.42*** (0.05)	.42*** (0.04)

Note. $N = 537$. Standard errors are in parentheses. P-LFF = Parent-reported Low Family Functioning; A-LFF = Adolescent-reported Low Family Functioning. The Well-Functioning class served as the reference group.

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

Class differences on concurrent levels of aggression at Wave 1 revealed significant differences, Wald $\chi^2(2) = 14.54, p < .001$. Follow-up analyses suggested that the P-LFF class had significantly higher levels of aggression when compared with the Well-Functioning class at Wave 1 ($\beta = .20, p < .001$). The A-LFF class did not significantly differ from either of the other two classes on levels of aggression at Wave 1. The overall Wald test for Wave 2 suggested that there were no significant differences between classes on changes in aggression, $\chi^2(2) = 5.59, p =$

.061. However, the individual path coefficient representing changes in aggression from Wave 1 to Wave 2 was significantly greater for the P-LFF class compared to the Well-Functioning class ($\beta = .09, p = .016$). Although this finding is consistent with the results from Wave 1, the significance of the path coefficient may have been due to Type I error given the Wald test at Wave 2 was not significant. There were no significant differences in changes in aggression among classes at Wave 3, Wald $\chi^2(2) = 4.49, p = .106$. There were significant differences on changes in aggression among classes at Wave 4, however, $\chi^2(2) = 6.33, p = .042$. Specifically, changes in aggression in the A-LFF class significantly differed from changes in aggression in the Well-Functioning class ($\beta = -0.08, p = .020$). The means of physical aggression for each class at each wave are graphed in Figure 8 to aid in the interpretation of this finding. Whereas adolescents in the Well-Functioning class appear to have maintained their levels of aggression from Wave 3 to Wave 4, adolescents in the A-LFF class showed decreases in aggression. The P-LFF class did not significantly differ from the other two classes on changes in aggression at Wave 4.

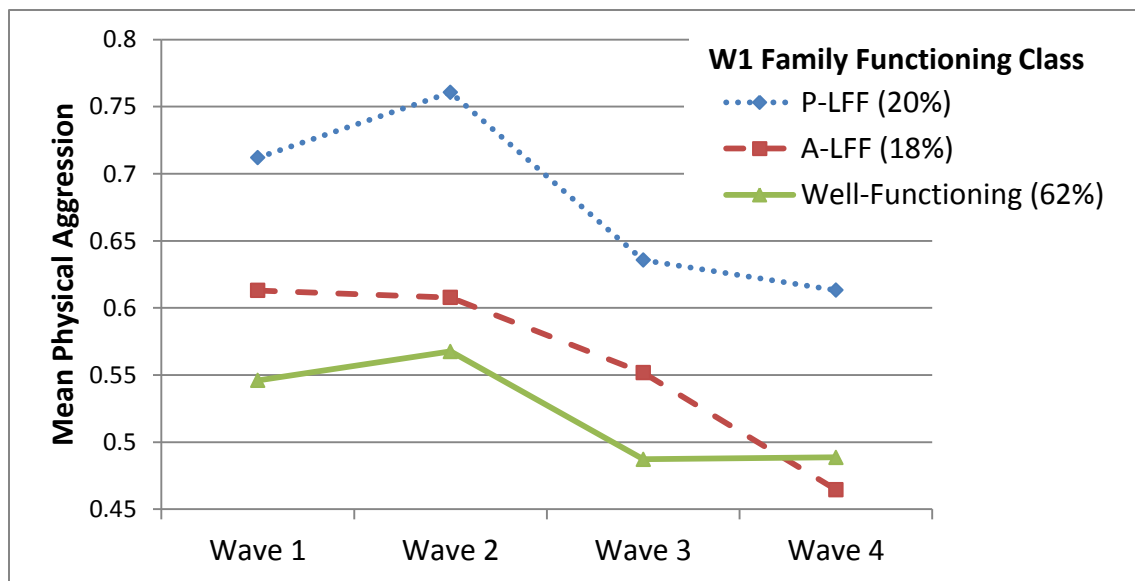


Figure 8. Patterns of means on physical aggression composite for each family functioning class at each wave. P-LFF = Parent-reported Low Family Functioning; A-LFF = Adolescent-reported Low Family Functioning.

Note. $N = 537$

Parental support for nonviolence. The overall model of the relations among parental support for nonviolence and physical aggression fit the data very well, $\chi^2(31) = 30.22, p = .506$, CFI = 1.00, RMSEA = .00 (see Table 10 and Figure 9).

Table 10

Standardized Parameter Estimates and Standard Errors for Regression of Physical Aggression on Parental Support for Nonviolence and Demographics

	W1 physical aggression	W2 physical aggression	W3 physical aggression	W4 physical aggression
Male gender	0.05 (0.05)	0.00 (0.03)	0.02 (0.04)	-0.01 (0.04)
Hispanic/Latino	-0.02 (0.06)	0.05 (0.05)	-0.03 (0.05)	0.03 (0.06)
African American	0.05 (0.08)	0.05 (0.04)	0.02 (0.06)	0.04 (0.06)
Biological parents in home	-0.12* (0.05)	0.03 (0.03)	-0.06 (0.04)	-0.03 (0.04)
Other adult male in home	0.02 (0.04)	-0.03 (0.04)	0.07 (0.06)	0.03 (0.05)
Wave 1 aggression		0.66*** (0.03)	0.17** (0.07)	0.29*** (0.06)
Prior wave aggression			0.49*** (0.05)	0.39*** (0.05)
Parent support nonviolence	-0.23*** (0.04)	-0.08* (0.04)	0.01 (0.05)	-0.13*** (0.04)
R ²	.09** (0.03)	.47*** (0.04)	.41*** (0.05)	.42*** (0.04)

Note. $N = 537$. Standard errors are in parentheses.

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

As hypothesized, higher levels of parental support for nonviolence at Wave 1 were significantly associated with lower levels of Wave 1 physical aggression ($\beta = -.23, p < .001$). A Wald test was conducted to examine the effects of Wave 1 parental support for nonviolence on subsequent changes in aggression across all waves, after controlling for demographics and prior levels of aggression. Results were significant, Wald $\chi^2(3) = 21.68, p < .001$. Parental support for nonviolence at Wave 1 predicted changes in aggression at Wave 2 ($\beta = -.08, p = .033$), such

adolescents who had initially reported higher parental support for nonviolence had relatively lower levels of aggression at Wave 2. The promotive effect of parental support for nonviolence was not significant Wave 3 ($\beta = .01, p = .878$), but did significantly predict changes in aggression at Wave 4 ($\beta = -.13, p < .001$). Although the overall mean for aggression decreased from Wave 3 to Wave 4, this decrease was greater for adolescents who had reported higher parental support for nonviolence.

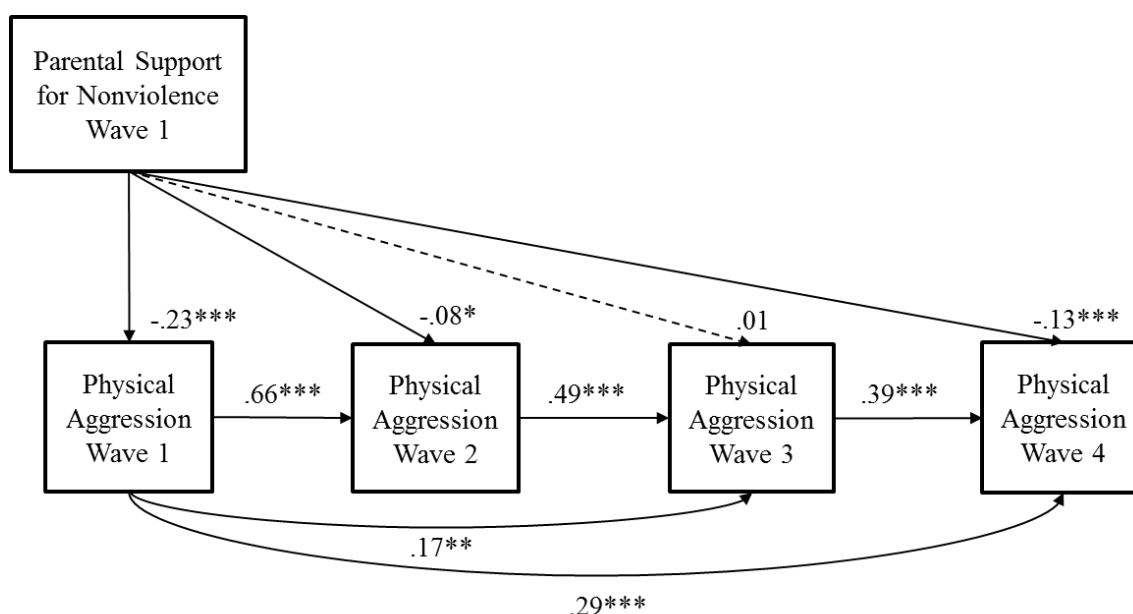


Figure 9. Path model examining the relation between parental support for nonviolence and physical aggression. Demographic covariates were included in the models but are not shown in the figure. Non-significant paths are represented by dashed lines.

Note. $N = 537$.

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

Parental support for fighting. A similar pattern was found for the promotive effects of low parental support for fighting on physical aggression. The overall model fit the data very well, $\chi^2(31) = 31.00, p = .466, CFI = 1.00, RMSEA = .00$ (see Table 11 and Figure 10). Lower levels of parental support for fighting at Wave 1 were significantly associated with lower levels

of Wave 1 physical aggression ($\beta = .26, p < .001$). Results of a Wald test of the effects of Wave 1 parental support for fighting on subsequent changes in aggression across all waves, after controlling for demographics and prior levels of aggression, were significant, $\chi^2(3) = 10.86, p = .013$. Parental support for fighting was significantly associated with changes in aggression at Wave 2 ($\beta = .10, p = .035$), such that adolescents who had initially reported lower parental support for fighting had relatively lower levels of aggression. Parental support for fighting did not significantly predict changes in aggression at Wave 3 ($\beta = .03, p = .491$), but did predict changes in aggression at Wave 4 ($\beta = .10, p = .024$). Although the overall mean for aggression decreased from Wave 3 to Wave 4, this decrease was greater for adolescents who had initially reported lower parental support for fighting.

Table 11

Standardized Parameter Estimates and Standard Errors for Regression of Physical Aggression on Parental Support for Fighting and Demographics

	W1 physical aggression	W2 physical aggression	W3 physical aggression	W4 physical aggression
Male gender	0.07 (0.04)	0.01 (0.03)	0.02 (0.04)	0.01 (0.04)
Hispanic/Latino	0.00 (0.06)	0.05 (0.05)	-0.03 (0.05)	0.03 (0.06)
African American	0.05 (0.07)	0.06 (0.04)	0.02 (0.06)	0.05 (0.06)
Biological parents in home	-0.12* (0.05)	0.03 (0.03)	-0.06 (0.04)	-0.03 (0.03)
Other adult male in home	0.03 (0.04)	-0.03 (0.04)	0.08 (0.06)	0.03 (0.05)
Wave 1 aggression		0.66*** (0.03)	0.16* (0.07)	0.30*** (0.06)
Prior wave aggression			0.48*** (0.05)	0.38*** (0.05)
Parental support fighting	0.26*** (0.05)	0.10* (0.05)	0.03 (0.04)	0.10* (0.05)
R ²	.10** (0.03)	.48*** (0.04)	.41*** (0.05)	.41*** (0.04)

Note. $N = 537$. Standard errors are in parentheses.

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

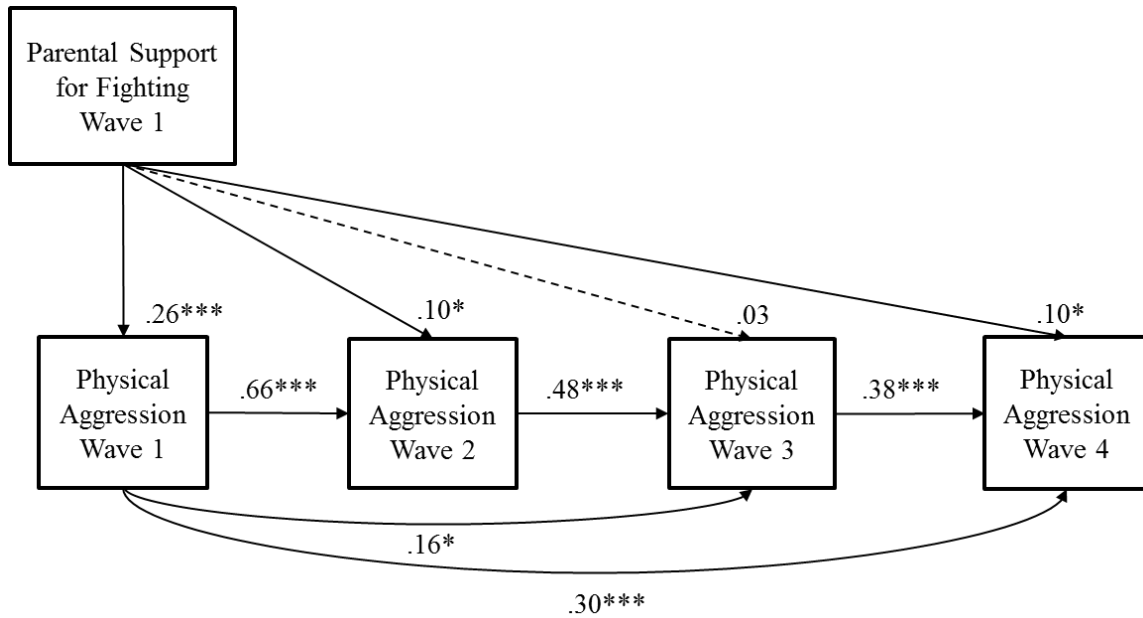


Figure 10. Path model examining the relation between parental support for fighting and physical aggression. Demographic covariates were included in the models but are not shown in the figure. Non-significant paths are represented by dashed lines.

Note. $N = 537$.

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

Risk x Protective Interactions

Moderation models were tested to assess the protective effects of high parental support for nonviolence, low parental support for fighting, and family functioning class on the risk of delinquent peer associations and witnessing violence on physical aggression. Moderation models were not tested with school norms supporting aggression because no significant risk for this variable was found.

Delinquent peer associations. The first set of models examined the extent to which each of the family factors moderated the relation between delinquent peer associations and aggression (see Table 12).

Table 12

Standardized Parameter Estimates and Standard Errors for Regression of Physical Aggression on Delinquent Peer Associations x Protective Factors Interactions and Demographics

	W2 physical aggression	W3 physical aggression	W4 physical aggression
<u>Moderating effect of family functioning class</u>			
Male gender	0.00 (0.04)	0.02 (0.04)	0.00 (0.04)
Hispanic/Latino	0.04 (0.05)	-0.02 (0.05)	0.03 (0.06)
African American	0.05 (0.04)	0.03 (0.05)	0.07 (0.06)
Biological parents in home	0.04 (0.03)	-0.05 (0.04)	-0.02 (0.04)
Other adult male in home	-0.05 (0.04)	0.05 (0.06)	0.00 (0.05)
Wave 1 aggression	0.64*** (0.04)	0.19** (0.07)	0.34*** (0.05)
Prior wave aggression		0.40*** (0.06)	0.31*** (0.06)
Prior wave delinquent peers	0.05 (0.05)	0.06 (0.06)	0.18* (0.08)
P-LFF class	0.09* (0.04)	0.07 (0.05)	0.01 (0.06)
A-LFF class	-0.01 (0.03)	0.05 (0.04)	-0.09* (0.04)
Prior Delinquent Peers x P-LFF Class	0.05 (0.05)	0.08* (0.03)	-0.01 (0.06)
Prior Delinquent Peers x A-LFF Class	0.08** ^a (0.04)	0.06 (0.05)	0.00 (0.06)
R ²	.49*** (0.04)	.41*** (0.05)	.44*** (0.04)
<u>Moderating effect of parental support for nonviolence</u>			
Male gender	-0.01 (0.03)	0.02 (0.04)	-0.01 (0.04)
Hispanic/Latino	0.05 (0.05)	-0.02 (0.05)	0.03 (0.06)
African American	0.05 (0.04)	0.01 (0.05)	0.06 (0.07)
Biological parents in home	0.04 (0.03)	-0.06 (0.04)	-0.02 (0.04)
Other adult male in home	-0.04 (0.04)	0.06 (0.06)	0.02 (0.05)
Wave 1 aggression	0.64*** (0.04)	0.23** (0.07)	0.31*** (0.06)
Prior wave aggression		0.38*** (0.06)	0.31*** (0.06)
Prior wave delinquent peers	0.10* (0.04)	0.15** (0.05)	0.15* (0.06)
Parental support nonviolence	-0.07 (0.04)	0.02 (0.05)	-0.12** (0.04)
Prior Delinquent Peers x W1 Support	-0.01 (0.03)	0.05 (0.05)	-0.02 (0.06)
R ²	.48*** (0.03)	.41*** (0.05)	.44*** (0.04)
<u>Moderating effect of parental support for fighting</u>			
Male gender	0.00 (0.03)	0.03 (0.04)	0.00 (0.04)
Hispanic/Latino	0.05 (0.05)	-0.02 (0.05)	0.03 (0.06)
African American	0.05 (0.04)	0.01 (0.05)	0.06 (0.06)
Biological parents in home	0.04 (0.03)	-0.06 (0.04)	-0.02 (0.04)
Other adult male in home	-0.04 (0.04)	0.06 (0.06)	0.01 (0.05)
Wave 1 aggression	0.64*** (0.04)	0.23** (0.07)	0.31*** (0.05)
Prior wave aggression		0.36*** (0.06)	0.31*** (0.06)
Prior wave delinquent peers	0.09* (0.04)	0.15** (0.05)	0.15* (0.06)
Parental support fighting	0.07 (0.04)	0.03 (0.05)	0.09* (0.05)
Prior Delinquent Peers x W1 Support	0.03 (0.03)	-0.06 (0.05)	0.02 (0.05)

	W2 physical aggression	W3 physical aggression	W4 physical aggression
R ²	.48*** (0.03)	.41*** (0.05)	.44*** (0.04)

Note. $N = 537$. Standard errors are in parentheses. P-LFF = Parent-reported Low Family Functioning; A-LFF = Adolescent-reported Low Family Functioning. For models including family functioning class, the Well-Functioning class served as the reference group. The superscript ^a indicates a significant parameter estimate found in the context of a nonsignificant overall effect of both interactions on aggression.

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

The overall model of the protective function of family functioning class on delinquent peer associations was a good fit, $\chi^2(29) = 72.91, p < .001, CFI = .94, RMSEA = .05$. Results of Wald tests comparing class differences within each wave indicated significant interaction effects across family functioning classes at Wave 3, $\chi^2(2) = 6.54, p = .038$, but not at Wave 2, $\chi^2(2) = 5.84, p = .054$, or at Wave 4, $\chi^2(2) = 0.07, p = .967$. Follow-up analyses indicated that the relation between delinquent peer associations at Wave 2 and changes in aggression at Wave 3 differed for adolescents in the P-LFF class versus those in the Well-Functioning class ($\beta = .08, p = .023$). This interaction was plotted by computing simple slopes of the Wave 3 aggression means for each class at high levels (1 SD above the mean), low levels (1 SD below the mean), and mean levels of Wave 2 delinquent peer associations (see Figure 10). Delinquent peer associations were more strongly related to changes in aggression among adolescents in the P-LFF class than those in the Well-Functioning class. Specifically, at low levels of Wave 2 delinquent peer associations, there were only small differences in Wave 3 aggression across classes. As the level of delinquent peer associations increased, adolescents in the Well-Functioning class were significantly buffered from the effects on aggression when compared to adolescents in the P-LFF class. Although the Wald test at Wave 2 was not significant, the individual path representing the differences in changes in aggression between the A-LFF class and the Well-Functioning class based on the Delinquent Peer Associations x A-LFF Class

interaction was significant ($\beta = .16, p = .022$). Because the overall effect of both interactions on changes in aggression at Wave 2 was not significant, the significance of this path may have been the result of Type I error and was not interpreted.

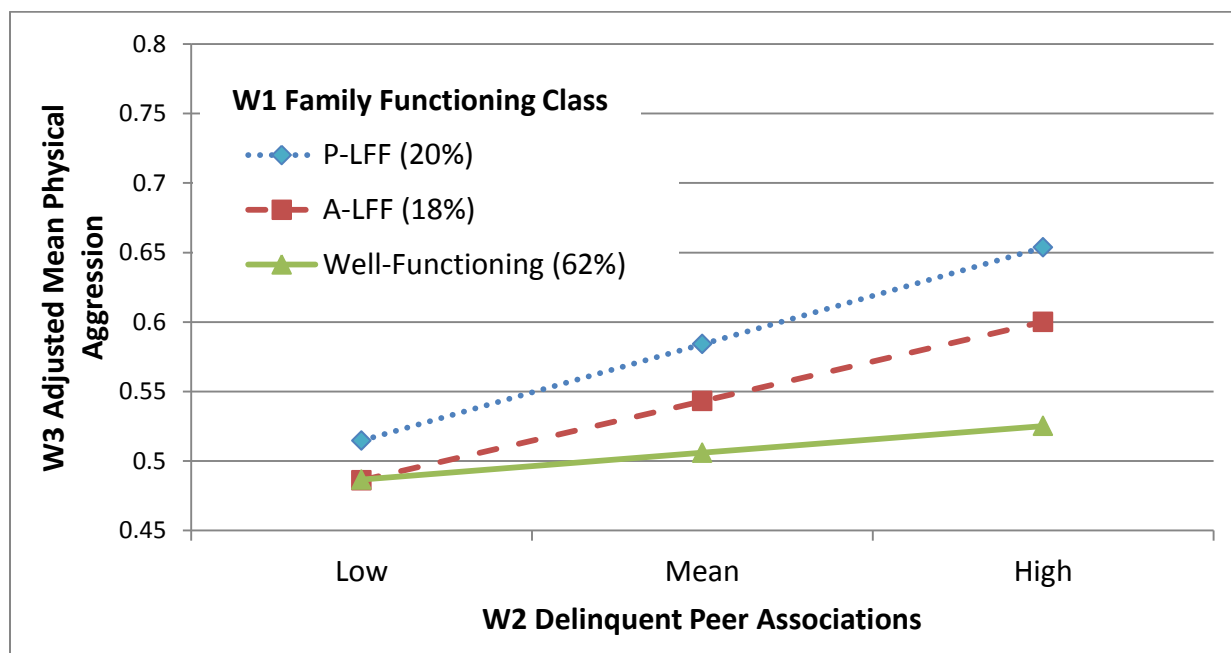


Figure 11. Protective-stabilizing effect of family functioning on changes in aggression from Wave 2 to Wave 3. P-LFF = Parent-reported Low Family Functioning; A-LFF = Adolescent-reported Low Family Functioning. The vertical axis represents the Wave 2 means for physical aggression, adjusted for differences at Wave 1, Wave 2, and other covariates. Adolescents in the Well-Functioning class were significantly buffered from the risk of increased levels of Wave 2 delinquent peer associations, compared to adolescents in the P-LFF class. Low = 1 SD below the mean; High = 1 SD above the mean.

The overall model of the protective function of high parental support for nonviolence on the relation between delinquent peer associations and physical aggression had an adequate fit, $\chi^2(23) = 53.68, p < .001, CFI = .96, RMSEA = .05$. However, results of a Wald test of the effects of the interaction between delinquent peer associations and parental support for nonviolence to predict aggression across all waves was not significant, $\chi^2(3) = .98, p = .807$. Similarly, the overall model of the protective function of low parental support for fighting also had an adequate

fit, $\chi^2 (23) = 54.34, p < .001, CFI = .96, RMSEA = .05$. The Wald test of the effects of the interaction between delinquent peer associations and parental support for fighting to predict aggression across all waves was also not significant, $\chi^2 (3) = 2.86, p = .414$.

Witnessing community violence. The next set of models examined the interactions between witnessing violence and each family factor (See Table 13). The overall model of the protective function of family functioning class on witnessing violence fit the data well, $\chi^2 (29) = 51.02, p = .007, CFI = .96, RMSEA = .04$. Results of Wald tests comparing class differences within each wave indicated nonsignificant interaction effects across family functioning classes at Wave 2, $\chi^2 (2) = 0.96, p = .618$, Wave 3, $\chi^2 (2) = .22, p = .895$, and Wave 4, $\chi^2 (2) = 0.27, p = .874$. In other words, family functioning at Wave 1 was not protective against the risk associated with witnessing community violence at later waves. The overall model of the protective function of high parental support for nonviolence also fit the data well, $\chi^2 (23) = 36.78, p = .034, CFI = .98, RMSEA = .03$. Results of a Wald test of the effects of the interaction between witnessing violence and parental support for nonviolence to predict aggression across all waves was not significant, $\chi^2 (3) = 2.80, p = .424$.

The overall model of the protective function of low parental support for fighting showed an adequate fit, $\chi^2 (23) = 42.80, p = .007, CFI = .97, RMSEA = .04$. The Wald test indicating the effects of the interaction between witnessing violence and parental support for fighting to predict aggression across all waves was significant, $\chi^2 (3) = 15.11, p = .002$. Follow-up analyses revealed a significant interaction between witnessing violence and parental support for fighting at Wave 1 and changes in physical aggression at Wave 2 ($\beta = -0.11, p = .001$).

Table 13

Standardized Parameter Estimates and Standard Errors for Regression of Physical Aggression on Witnessing Violence x Protective Factors Interactions and Demographics

	W2 physical aggression	W3 physical aggression	W4 physical aggression
<u>Moderating effect of family functioning class</u>			
Male gender	-0.00 (0.03)	0.01 (0.04)	-0.01 (0.05)
Hispanic/Latino	0.05 (0.05)	-0.04 (0.05)	0.02 (0.06)
African American	0.05 (0.04)	0.01 (0.05)	0.06 (0.06)
Biological parents in home	0.03 (0.03)	-0.05 (0.04)	-0.02 (0.03)
Other adult male in home	-0.04 (0.04)	0.07 (0.06)	0.01 (0.05)
Wave 1 aggression	0.66*** (0.03)	0.16* (0.06)	0.33*** (0.05)
Prior wave aggression		0.43*** (0.05)	0.36*** (0.05)
Prior wave witnessing violence	0.07 (0.05)	0.10* (0.04)	0.05 (0.06)
P-LFF class	0.08* (0.04)	0.08 (0.05)	0.02 (0.06)
A-LFF class	-0.01 (0.03)	0.05 (0.04)	-0.08* (0.04)
Prior Witnessing Violence x P-LFF Class	-0.01 (0.05)	0.00 (0.05)	0.01 (0.07)
Prior Witnessing Violence x A-LFF Class	-0.05 (0.06)	0.02 (0.05)	0.03 (0.06)
R ²	.48*** (0.04)	.42*** (0.05)	.42*** (0.04)
<u>Moderating effect of parental support for nonviolence</u>			
Male gender	-0.01 (0.03)	0.02 (0.04)	-0.02 (0.04)
Hispanic/Latino	0.04 (0.05)	-0.03 (0.05)	0.02 (0.05)
African American	0.05 (0.04)	0.02 (0.06)	0.05 (0.06)
Biological parents in home	0.03 (0.04)	-0.06 (0.04)	-0.02 (0.03)
Other adult male in home	-0.03 (0.04)	0.07 (0.06)	0.02 (0.05)
Wave 1 aggression	0.66*** (0.04)	0.19** (0.06)	0.30*** (0.06)
Prior wave aggression		0.42*** (0.05)	0.37*** (0.05)
Prior wave witnessing violence	0.05 (0.04)	0.12** (0.04)	0.02 (0.06)
Parental support nonviolence	-0.08* (0.04)	0.01 (0.05)	-0.11** (0.04)
Prior Witnessing Violence x W1 Support	0.03 (0.04)	0.01 (0.03)	-0.09 (0.06)
R ²	.48*** (0.03)	.40*** (0.05)	.43*** (0.04)
<u>Moderating effect of parental support for fighting</u>			
Male gender	0.00 (0.03)	0.02 (0.04)	-0.01 (0.04)
Hispanic/Latino	0.05 (0.05)	-0.03 (0.05)	0.02 (0.06)
African American	0.05 (0.04)	0.02 (0.06)	0.05 (0.06)
Biological parents in home	0.02 (0.03)	-0.06 (0.04)	-0.03 (0.03)
Other adult male in home	-0.03 (0.04)	0.08 (0.06)	0.01 (0.05)
Wave 1 aggression	0.65*** (0.04)	0.18** (0.06)	0.30*** (0.05)
Prior wave aggression		0.41*** (0.04)	0.36*** (0.05)
Prior wave witnessing violence	0.06 (0.04)	0.12** (0.05)	0.04 (0.05)
Parental support fighting	0.09* (0.05)	0.03 (0.05)	0.10* (0.04)
Prior Witnessing Violence x W1 Support	-0.11** (0.03)	-0.02 (0.05)	0.07 (0.04)

	W2 physical aggression	W3 physical aggression	W4 physical aggression
R ²	.49*** (0.04)	.41*** (0.05)	.42*** (0.04)

Note. $N = 537$. Standard errors are in parentheses. P-LFF = Parent-reported Low Family Functioning; A-LFF = Adolescent-reported Low Family Functioning. For models including family functioning class, the Well-Functioning class served as the reference group.

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

The specific nature of the interaction was protective-reactive, in that the positive effects of lower levels of parental support for fighting declined as the level of witnessing violence increased. At the highest levels of Wave 1 witnessing violence, low parental support for fighting no longer appeared to buffer its effect on Wave 2 aggression (see Figure 12).

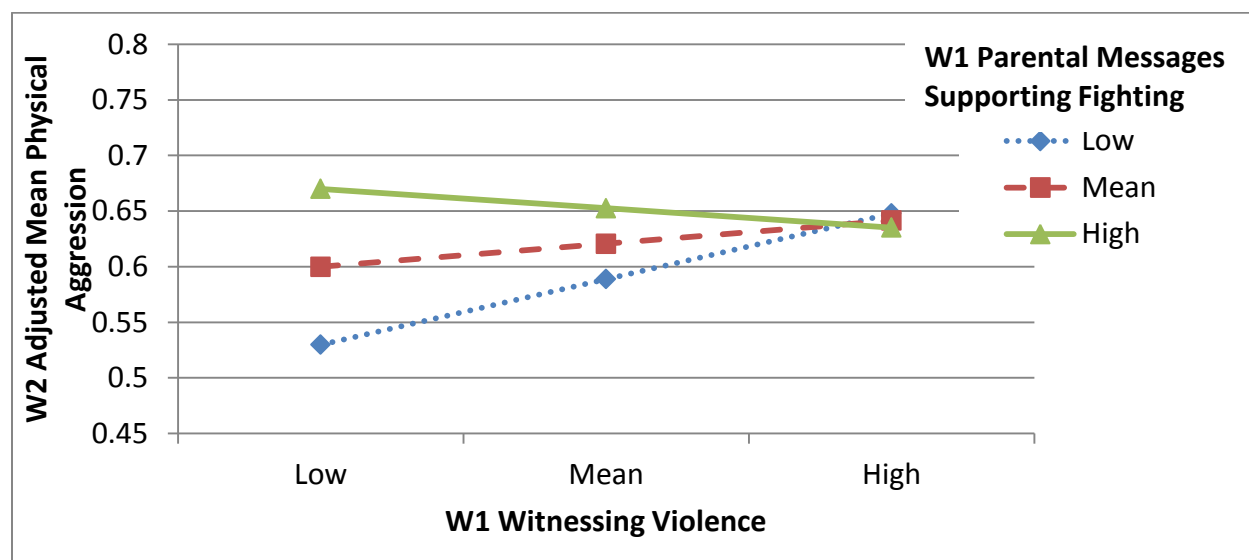


Figure 12. Protective-reactive effect of parental support for fighting on changes in aggression from Wave 1 to Wave 2. The vertical axis represents the Wave 2 means for physical aggression, adjusted for differences at Wave 1, Wave 2, and other covariates. Low support for fighting buffered adolescents from aggression, but only at low levels of witnessing violence. Low = 1 SD below the mean; High = 1 SD above the mean.

Gender Differences

Exploratory analyses based on gender were conducted using multiple group analyses that tested each path model separately for boys and girls. Models that constrained corresponding path

coefficients to be equal across genders were compared to unconstrained models using the Satorra-Bentler scaled chi-square difference test (Satorra & Bentler, 2001). This method accounts for nested data by adjusting the chi-square statistic and degrees of freedom for the unconstrained and the constrained (i.e., nested) models using a scaling correction factor.

Table 14
Results of Chi-Square Tests of Model Fit for Constrained and Unconstrained Models in Multiple Group Analyses Based on Gender, and Chi-Square Difference Test

	<u>Constrained model</u>			<u>Unconstrained model</u>			<u>Difference</u>	
	χ^2_0	df_0	c_0	χ^2_1	df_1	c_1	χ^2	df
<u>Risk models</u>								
Delinquent peer associations	115.86	118	1.02	113.68	112	1.00	3.42	6
School norms supporting aggression	229.84	160	1.18	228.35	156	1.18	1.49	4
Witnessing violence	120.63	118	1.03	118.82	112	1.02	2.57	6
<u>Promotive models</u>								
Family functioning class	51.45	58	0.95	42.86	50	0.92	8.31	8
Parent support for nonviolence	60.26	66	0.96	57.08	62	0.97	3.09	4
Parent support for fighting	59.99	66	0.95	57.40	62	0.93	2.92	4
<u>Protective models</u>								
Delinquent Peers x Family Functioning Class	114.95	64	0.96	112.81	58	0.94	3.88	6
Delinquent Peers x Parent Support Nonviolence	93.46	49	0.91	94.95	46	0.89	0.16	3
Delinquent Peers x Parent Support Fighting	89.54	49	0.95	89.91	46	0.92	1.78	3
Witnessing Violence x Family Functioning Class	105.25	64	0.95	94.93	58	0.97	10.48	6
Witnessing Violence x Parent Support Nonviolence	76.82	49	0.99	76.11	46	0.97	1.74	3
Witnessing Violence x Parent Support Fighting	89.85	49	0.94	85.01	46	0.92	4.99	3

Note. $N = 537$ (191 girls, 346 boys). In constrained multiple group models, path coefficients were constrained to be equal for boys and girls, whereas coefficients in unconstrained multiple group models were free to vary. χ^2 = chi-square value; df = degrees of freedom; c = scaling correction factor for MLR. Values for chi-square difference tests were all nonsignificant ($p > .05$).

The differences between the scaled chi-square values and the degrees of freedom were tested for significance using a chi-square distribution table. There were no significant differences between constrained and unconstrained models, suggesting no differences in the patterns of results based on gender (see Table 14).

Discussion

Summary and Discussion of Findings

The current study examined how family processes, including family functioning and parental support for nonviolent as opposed to violent solutions to conflict, protect developing adolescents against the impact of risk factors for aggression found in the peer group, school, and neighborhood. Adolescents' delinquent peer associations, school norms supporting aggression, and witnessing community violence were first analyzed in relation to adolescents' levels of physical aggression over time, in order to establish these variables as risk factors. The first main hypothesis was that higher levels of each risk factor at a given wave would significantly predict changes in physical aggression at the following wave. As expected, relative to adolescents who reported lower levels of delinquent peer associations, adolescents with higher levels of delinquent peer associations reported higher levels of aggressive behavior at the following wave. This was true for all time points measured. These results support the peer influence model, and are consistent with several previous studies that have found direct relations between delinquent peer associations and higher rates of aggression over time (e.g., Espelage et al., 2003; Huizinga, 1995; Reitz et al., 2006; Vitaro et al., 1997). In the current model, the association with delinquent peers was related to higher levels of aggression even when controlling for previous levels of aggression. This is further support for the peer influence model, which asserts that associating with delinquent peers contributes to increases in problem behaviors regardless of the adolescent's initial level of problem behavior (Vitaro et al.).

At the same time, results revealed significant paths from aggression to delinquent peer associations, such that adolescents with higher levels of aggressive behavior were more likely

than their less aggressive counterparts to associate with delinquent peers. This reciprocal relation between aggression and delinquent peer associations may provide some support for the individual characteristics model, in that prior levels of aggression independently influenced the association with delinquent peers (Vitaro et al., 1997). Aggressive adolescents in this sample may have sought out like-minded individuals who served to maintain or increase their levels of aggression over time.

Contrary to expectation, school norms supporting aggression were not significantly related to individual adolescents' aggressive behaviors. These findings are consistent with those of Ousey and Wilcox (2005), but are inconsistent with several other studies that found that school- or classroom-level injunctive norms predicted individual-level aggression (e.g., Bernburg & Thorlindsson, 2005; Henry et al., 2011; Henry et al., 2000). The fact that the findings from the current study differ from those of the 2011 study by Henry and colleagues is particularly noteworthy, as both used data from the MVPP study and both used the same school-level measure of norms supporting aggression. One likely explanation for the discrepant findings is that the current study focused on aggression in the targeted sample, rather than the cohort-wide sample. The measure that assessed school norms supporting aggression was not administered to students in the targeted sample, and so the variable used in the current study was an aggregate of reports obtained from the cohort-wide sample of the larger MVPP study. The rationale for using this variable was that it represented the perceived norms of a random sample of students in each school and it was not confounded by the beliefs of the current study's participants. The two samples may have been too dissimilar, however, to try to predict actual behaviors in the targeted sample from the perceptions of the cohort-wide sample. A second possible reason for these

findings may be due to the specific nature of the targeted sample. The adolescents in this sample were identified at the start of sixth grade by their teachers for their high levels of aggression and for their potential influence on peers. Since the adolescents were already engaging in aggressive behavior early on, it is possible that they had already been socialized to view aggressive behavior as normative through other influences (e.g., the family). Similarly, the fact that the targeted sample had been rated by their teachers as being highly respected and often imitated by peers suggests that they may have been less motivated by impression management (Felson et al., 1994). Thus, it is plausible that the sample of aggressive and influential students in this study were not as influenced by their school environment as a random sample of students may have been.

Support for witnessing community violence as a risk factor for aggression has been previously established (e.g., Attar et al., 1994; Farrell & Bruce, 1997; Ng-Mak et al., 2004; O'Keefe, 1997), although results in the current study were mixed. Witnessing violence significantly predicted changes in aggression, but only for one path (i.e., from the spring of sixth grade to the spring of seventh grade). At the same time, two of the three reciprocal paths from physical aggression to witnessing violence were significant. These results are consistent with research suggesting that aggression may be as much a risk factor for violence exposure as violence exposure is a risk factor for aggression (e.g., Lynch & Cicchetti, 1998; Farrell et al., in press). It is possible that the adolescents in this study, who already had high levels of aggression compared to their peers, spent increasing amounts of time in community contexts in which they were more likely to witness violence. The current findings support an ecological approach to development in that the relation between aggressive behavior and witnessing violence is likely

best explained as a bidirectional and dynamic interaction, as opposed to a unidirectional effect.

The second main hypothesis in the current study was that there would be promotive effects for adolescents entering middle school as part of families with higher family functioning and with parents who supported nonviolent strategies over fighting. Better family functioning (i.e., membership in the Well-Functioning class) measured in the fall of sixth grade was expected to be associated with lower levels of aggression both concurrently and over time, compared to the classes in which either adolescents or parents reported poorer family functioning. As hypothesized, adolescents in the Well-Functioning class had lower concurrent levels of aggression in the fall of sixth grade compared with adolescents in the P-LFF class. There were no significant differences between the Well-Functioning and P-LFF classes in changes in aggressive behavior at subsequent waves. It may be that the positive effects of membership in the Well-Functioning class or the negative effects of family functioning in the P-LFF class that were present at Wave 1 were maintained over time, but did not become more pronounced. At Wave 1, the Well-Functioning class was not significantly different from the A-LFF class. By the spring of eighth grade, however, the levels of aggression for adolescents in the A-LFF class had decreased significantly compared to the levels of aggression for adolescents in the Well-Functioning class. This finding was unanticipated, and may reflect changes in family functioning over the course of middle school that were not analyzed as part of the current study. For example, parents may have been initially unaware of the difficulties their adolescents were having or of the adolescents' negative perceptions about the family. They may have subsequently taken steps to address the adolescents' perceived problems at home or aggressive behavior at school. It is also possible that the perceptions of the adolescents in this class may have been negatively skewed at Wave 1 by

factors such as depression (e.g., De Los Reyes, Goodman, Kliewer, & Reid-Quiñones, 2008). One might expect that adolescents would have worse outcomes if they believe that their family contexts are not meeting their needs. However, it is possible that the adolescents in the A-LFF class felt that their families were so unsupportive and chaotic that they sought out support and structure from other sources. There were no significant differences between the P-LFF and A-LFF classes at any wave. Additional hypotheses regarding family functioning classes are further discussed in the following section on limitations of the study and future directions.

The promotive effects of high parental support for nonviolence and low parental support for fighting on levels of aggression were mainly consistent with the stated hypotheses. For each of these variables, parental support was associated with initial levels of aggression, as well as changes in aggression across all waves but one. These findings are consistent with the small existing literature on the associations between aggression and high parental support for nonviolence (e.g., Malek et al., 1998) and low parental support for fighting (e.g., Orpinas et al., 1999). By expressing support for nonviolent alternatives to fighting, parents are theoretically able to influence the development of values and normative beliefs that adolescents can draw from when faced with conflict. On the other hand, adolescents will more likely engage in aggressive behavior if they believe that it is accepted or encouraged by their parents and others that are closest to them (Bernburg & Thorlindsson, 2005).

The third set of hypotheses were based on the examination of the extent to which better family functioning, higher parental support for nonviolence, and lower parental support for fighting at the start of middle school protect against the risks from delinquent peer associations and witnessing violence encountered over the next three years. Moderation was not tested for

school norms supporting aggression, as prior risk-only models suggested that there was no significant risk associated with school norms for the current study's sample. The results of models testing interactions between risk and putative protective factors were largely nonsignificant. Family functioning served as a protective factor only against the risks associated with delinquent peer associations, and only for changes in aggression from the spring of sixth grade to the spring of seventh grade. The specific nature of the interaction was protective-stabilizing for adolescents in Well-Functioning families compared with those in the P-LFF class. In other words, as the level of delinquent peer associations increased overall from the spring of sixth grade to the spring of seventh grade, adolescents in better-functioning families were buffered from this risk. The fact that no other significant effects were found for the interaction between family functioning and delinquent peer associations goes against several studies that show support for a moderation effect. Protective effects have been found for family functioning variables as reported by both parents and adolescents, including attachment (e.g., Vitaro et al., 2000), mother-child relationship (Mason et al., 1994), nurturance and discipline (Mrug & Windle, 2009), familism (German et al., 2009), and emotional support (Zimmerman et al., 1998). Protective effects have not been found, however, in several studies that examined parental monitoring and involvement (e.g., Vitaro et al.; Farrell et al., 2011). It is possible that family variables representing support and relationship factors are more likely to protect against the influence of delinquent peers than are variables related to parental monitoring and involvement in adolescents' daily activities. Combining different types of family variables into latent classes may have lost the subtle influences of each individual variable. Another possible explanation is that a model in which family functioning initially protects adolescents from associating with

delinquent peers is a better fit than a model in which families are protective once these associations have been established. Such a model was explored by Henry and colleagues (2001), and was found to fit the data better than a moderation model like the one tested in the current study.

Family functioning was not a significant protective factor against witnessing community violence, which was not anticipated. It is surprising that the results of the current study are not consistent with those of Gorman-Smith, Henry, and Tolan (2004), who successfully used family functioning classes as a moderator variable of the effects of community violence exposure on aggression. The discrepant findings may be due to fact that Gorman-Smith and colleagues investigated the risks associated with violence exposure using a measure that combined direct (i.e., victimization) and indirect (i.e., witnessing) exposure, whereas the present study examined only indirect exposure. Furthermore, the latent family functioning classes in the Gorman-Smith et al. study included several measures of family functioning that were not included in the current study (i.e., family-related beliefs, family structure, discipline effectiveness, and avoidance of discipline). The latent classes were also created after parent reports and adolescent reports of each construct were aggregated. Thus, the classes were not as tied to the differing perceptions of parents versus adolescents as they were in the present study. The lack of support for family functioning as a protective factor is in line with some previous research (e.g., Benhorin & McMahon; 2008; Gorman-Smith & Tolan, 1998; Salzinger et al., 2010). One potential explanation is that adolescents who have witnessed community violence may be more likely to have parents that have also witnessed community violence. Parents who have witnessed or

experienced community violence may become emotionally withdrawn and unavailable to fully engage in their children's development (Garbarino et al., 1997).

The hypotheses that high levels of perceived parental support for nonviolence and low levels of perceived parental support for fighting would protect adolescents from risk were also not generally supported. Neither measure of parental support significantly buffered adolescents from the risks associated with delinquent peers at any wave. Only one study was identified that examined interactions between parental support and delinquent peer associations, which found that low levels of parental support for fighting buffered the impact of delinquent peer associations on aggression (Farrell et al., 2011). Farrell and colleagues also found that high levels of parental support for nonviolence moderated the relation between delinquent peer associations and aggression for girls. This study and the current study both used data from the same longitudinal MVPP project. The studies used different subsets of adolescents from the larger sample, however, which may be one reason for the differences in results. The current study only included high-risk adolescents in the targeted sample who were selected based on their high levels of aggression, whereas the study by Farrell and colleagues was based on the cohort-wide sample representing a random selection of adolescents from each school. For adolescents in the targeted sample, the positive effects of parental support for nonviolence and fighting on aggression appear to be consistent despite differing levels of peer influence.

Perceived parental support for nonviolence did not significantly moderate the relation between witnessing violence and aggression. Adolescents whose parents refrained from expressing support for fighting were minimally protected, however. More specifically, the protective effects of lower levels of parental support for fighting significantly attenuated changes

in aggression due to witnessing violence, but only between the fall and spring of sixth grade. Furthermore, these effects declined as the level of witnessing violence increased, such that the protection was no longer discernible at the highest levels of violence exposure. The existing literature from which to draw hypotheses about these findings is very small, as no studies were found that examined interactions between parental support for nonviolence or fighting and witnessing community violence as predictors of physical aggression. Given the complex individual and environmental factors associated with community violence exposure, it is reasonable to expect that parental messages about resolving conflict may not be sufficient in reducing aggression in adolescents who have witnessed high levels of violence. For high-risk adolescents with low to moderate levels of violence exposure, however, the current study's results suggest that it may be helpful for parents to refrain from endorsing fighting as a viable problem-solving option. An alternative interpretation of the protective-reactive interaction between witnessing violence and parental support for fighting is that the negative effects of parental support for fighting are not as detrimental in highly violent contexts. There is literature to suggest that some families living in neighborhoods characterized by high rates of crime and violence convey favorable attitudes towards aggression (Anderson, 1999). One reason for this is that parents living in potentially threatening environments may be more likely to express support for fighting in the hopes that their children will be able to defend themselves if necessary (Dodge, Pettit, & Bates, 1994). Some parental support for fighting may be the norm in communities with high rates of violence, and its influence on aggressive behavior may be different from the influence it would have in relatively safer contexts.

Gender differences in each of the hypothesized relations were tested, but there were no significant differences in the patterns of results for boys and girls. This may be explained by the study's targeted sample. Teachers provided reports of both boys' and girls' aggressive behaviors based on the same set of questions. It is possible that the gender differences found in other studies of risk and protective factors for aggression (e.g., Farrell et al., 2011) are in part due to the different levels of aggressive behavior typically exhibited by a random sample of boys and girls. For adolescents with the highest levels of aggression, however, the effects of the three risk factors tested in the current study and the effects of family protective factors do not appear to differ greatly across gender. The lack of gender differences across the multiple constructs measured in this study suggests that future research on risk and protective factors for high-risk adolescents should not exclude females.

Limitations and Directions for Future Research

The purpose of the current study was to explore the protective effects of family processes on contextual risk factors for aggression. This study attempted to address some of the limitations of previous research but had some limitations of its own. One potential limitation relates to using only the targeted sample of the MVPP study, which includes adolescents that were selected by their teachers based on their high levels of aggression and perceived social influence at the start of sixth grade. The use of this sample provides a unique opportunity to explore risk and protective factors as they relate to a high-risk population. However, the targeted sampling may have resulted in a limited range of responses on physical aggression. It is also possible that if these adolescents were already displaying aggressive behavior at the start of middle school, some may have been exhibiting what researchers describe as early-onset or life-course persistent

aggression (e.g., Moffitt, 1993). Compared to children who engage in adolescent-limited delinquent or aggressive behavior, children who initiate such behaviors earlier on are believed to have experienced higher levels of family dysfunction and negative parent-child interactions (e.g., Moffitt; Patterson, 1982). If many of the children in the targeted sample were showing patterns of early-onset aggression, the range of responses on family process measures may also have been limited. If this study were to be replicated in the future, a sample with greater variability on both aggressive behavior and family functioning variables would be ideal.

One of the strengths of the present study was the opportunity to examine adolescents' physical aggression as reported by multiple informants. Using a composite measure that combined adolescent, teacher, and parent ratings of aggression may have also been a limitation, however. The composite scores were highly correlated with each other across waves (r_s .57 to .68), which suggests that the measure may not have been very sensitive to change. It is possible that parents and teachers may have already formed opinions about the adolescents and their typical behaviors, and they may have provided ratings of aggression based on their overall impression more so than actual observations. Controlling for levels of aggression at the start of sixth grade in each model likely helped to isolate changes that were not influenced by prior levels of aggression. However, this may have resulted in limited variability in levels of aggression across the remaining waves, making it more difficult to detect significant predictors. Future studies may benefit from conducting separate analyses for each outcome measure, as illustrated by German and colleagues (2009).

In order to test specific hypotheses related to family functioning, a latent profile analysis was conducted to create family functioning classes. In general, comparing the effects of the

family functioning classes on aggression produced largely unanticipated findings. It is possible that examining each individual measure of family functioning (i.e., family cohesion, family problem-solving, parental monitoring and involvement, and positive parenting) would have yielded more interpretable results. Combining data from all of these variables into latent classes may have weakened the effects of any individual factor that served a protective function.

Furthermore, results did not clearly support the hypothesis that adolescents in the Well-Functioning class would fare significantly better than adolescents in the other two classes. One possible reason for this is that the best-fitting LPA solution produced classes that could be differentiated as much by the source of information (i.e., parent or adolescent) as by the levels of family functioning. In the Well-Functioning class, both parents and adolescents agreed that their families fell in the average or above-average range of functioning on all variables. In the P-LFF and the A-LFF classes, however, there were clear discrepancies between the subjective perceptions of family functioning as reported by parents and adolescents. It is possible that further examining the nature and magnitude of these discrepancies would have better explained the relations among family functioning and physical aggression. There is a growing body of literature suggesting that the discrepancy between parent and child reports of the same construct is in and of itself a variable worthy of consideration. In a study by De Los Reyes, Goodman, Kliewer, and Reid-Quiñones (2010), for example, high mother-adolescent discrepancies on reports of parental monitoring were predictive of adolescent delinquency two years later. More specifically, adolescents reported higher levels of delinquency if there had been a high degree of discrepancy in which mothers reported greater levels of monitoring than the adolescents reported. Furthermore, the variable representing the discrepancy itself was a better predictor of

future delinquency than were the parent or adolescent reports alone. Studying the degree to which parent and adolescent informants were discrepant in the current study would have further complicated an already complex design. However, future researchers focusing on family functioning as a protective factor should consider incorporating informant discrepancies into their models.

One of the main limitations of conducting secondary data analyses is that the researcher does not have control over the measures that were used during data collection. There are several constructs that are important to the present study that were either not measured in the larger MVPP study, or may have been measured more adequately by a different assessment tool. For instance, no measures were included that specifically assessed the quality of the parent-child relationship. Prior research suggests that the risks associated with delinquent peer associations can be moderated by parental attachment (Vitaro et al., 2000), the parent-child relationship (Mason et al., 1994), and maternal support (Zimmerman et al., 1998), and that the risks associated with witnessing violence can be moderated by perceived emotional support from mothers (Ozer, 2005). If this study were to be replicated, a measure of maternal emotional support would be a valuable addition to understanding the protective effects of families. A different measure of parental support for nonviolence and fighting may be appropriate for future research on these constructs as well, as the measure used in the current study has some limitations. The Parental Support for Fighting measure (Orpinas et al., 1999) was originally a one-dimensional scale that was divided into two subscales based on a factor analysis of the items. Because the measure was initially intended to only assess support for fighting, the five-item scale representing support for nonviolence may not sufficiently sample that domain. In

place of the family problem-solving measure, researchers might consider parent- and adolescent-report measures that assess how often parents engage in specific aggressive or nonaggressive behaviors during disagreements or fights at home (e.g., Revised Conflict Tactics Scales; Strauss, 1999). Adolescent aggressive behavior may be more closely related to family members' specific strategies used during conflict than by the more general construct measured in this study. Future researchers might also want to use a different measure of parental monitoring and involvement. This construct may be better measured by a scale that taps into the extent to which adolescents willingly disclose personal information to their parents (Kerr & Stattin, 2000).

The present study focused on the extent to which protective factors present in the family at the start of the sixth grade buffer adolescents from risk factors they subsequently encounter throughout middle school. The theoretical basis for this design was the idea that early family interactions help form the foundation for children's normative beliefs and information-processing skills, which influence interpersonal interactions and behaviors later in adolescence. One of the drawbacks of this model is that it limits the predictive power that the Wave 1 protective factors can have at later waves. It also does not account for changes in family processes over time. For example, parents may make adjustments in parenting practices based on their child's behavior, or there may be changes within the family that negatively or positively affect aspects of its functioning. An alternate conceptualization is to ask to what extent family factors at a given point in time are able to protect against concurrent risk. A study testing a model that includes time-varying family factors and that allows one to examine how both risk and protective factors change over time would be an important contribution to this area of research.

An important area of research that was not fully explored in the current study is the contribution of race and ethnicity on the protective effects of family processes. Racial and ethnic minority parents often face unique challenges associated with raising resilient children in the contexts of historical and institutional racism, poverty, and the stresses associated with immigration and acculturation (Coard, Foy-Watson, Zimmer, & Wallace, 2007; Garcia Coll & Pachter, 2002; McLoyd, 1998). Thus, the hypothesized relations among the risk and protective factors in this study may have differed based on race or ethnicity. It would have been difficult to use multiple group analyses to examine differences in path models based on these factors, as these variables in the MVPP study were confounded with geographical location. For example, participants from the Richmond, Virginia site were predominantly African American, whereas participants from the Northeastern Georgia site were predominantly Caucasian. Race and ethnicity could not be systematically examined in the current study, but were included as covariates, along with gender and family structure, to control for any effects that they may have had. There is value in identifying common risk and protective factors across groups by controlling for differences in demographics. At the same time, future researchers will hopefully be able to parse out how these relations may or may not differ across groups, in order to inform culturally-relevant intervention efforts (Coard et al.; Garcia Coll & Pachter).

This study contributes to the literature by illustrating the importance of distinguishing between promotive and protective factors. Findings suggest that an initial foundation of good family functioning and parents that support nonviolence rather than fighting have a direct, beneficial effect for all high-risk adolescents, regardless of their level of risk. Moreover, the promotive effects of high parental support for nonviolence and low parental support for fighting

continued over the course of middle school. These findings indicate that universal efforts to prevent aggression in high-risk adolescents should include strengthening aspects of family functioning, such as cohesiveness, problem-solving, and positive parenting. Prevention and intervention efforts should also encourage parents to clearly communicate their support for nonviolence and refrain from endorsing fighting as a means to solve problems. Although the effects of these family factors were beneficial across the sample as a whole, they generally did not serve to protect adolescents that experienced higher levels of risk for aggression. It is possible that adolescents who are already exhibiting high rates of aggressive behavior may need different or additional protective factors in place when they encounter additional risks within their peer groups, schools, and communities.

Youth violence prevention is most effective when intervening at multiple levels of influence, including families (Kumpfer & Alvarado, 2003; Reese, Vera, Simon, & Ikeda, 2000). Future researchers should build on the current study by addressing some of its limitations in order to identify both promotive and protective factors for high-risk adolescents. Such research is necessary in order to inform the development of targeted interventions designed to help individuals achieve positive outcomes despite high levels of risk.

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