PROTECTIVE FACTORS FOR AGGRESSION
IN RURAL AFRICAN AMERICAN YOUTH

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ABSTRACT

MATTHEW J. IRVIN: Protective Factors for Aggression in Rural African American Youth
(Under the direction of Thomas W. Farmer)

This study was undertaken to augment the limited knowledge of protective factors for aggression in rural African American youth. Specifically, this study sought to determine if several factors during middle school functioned as buffers against aggressive behavior in high school. Aggression is a significant issue facing our educational system. For example, most of the aggression youth encounter occurs on school grounds. In addition, engaging in and being the recipient of aggressive behavior adversely impacts numerous important educational outcomes. One of the most potent risks for aggression is economic deprivation. African American youth in rural areas of the South experience severe and persistent poverty, but research has rarely involved this population. Studies with rural and African American youth have typically incorporated a deficit orientation. As a result, the variation and heterogeneity in strengths and risks across these populations has been neglected. Person-oriented research has demonstrated that cluster analytic procedures can identify unique combinations of strengths and risks that capture this variation and also improve prediction of developmental outcomes. Consequently, there is a need for studies of resilience that incorporate a person-oriented approach and seek to clarify protective factors for aggression in rural African American youth.

Cluster analyses on teacher-ratings of aggression, academics, and popularity were undertaken to identify participants' profiles of risks and strengths at the end of elementary school. Youth with multiple risk profiles were identified and were considered to be at-risk for future aggression. Results demonstrated that youth with multiple risks at the end of elementary school were more aggressive in high school. The factors across early adolescence that were examined to determine if these served a protective function were involvement in school activities, bonding to school, and involvement in church activities. Results indicated that bonding to school served a general protective function for girls while involvement in school activities was protective for boys. The significance, strengths and limitations, and implications of this study for prevention and intervention efforts are discussed.

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CHAPTER I

INTRODUCTION

Approximately half of the violent acts adolescents encountered during the last decade occurred on school grounds (U. S. Departments of Education and Justice, 2004). Additionally, interpersonal aggression disproportionately affects and has become the leading cause of injury and death for African American adolescents (Fitzpatrick, 1997; Irwin, Burg, & Cart, 2002; Malik, Sorenson, & Aneshensel, 1997; National Center for Injury Prevention and Control, 2002; Valois, McKeown, Garrison, & Vincent, 1995). Even though aggression has been studied extensively, the research to date has primarily sought to identify risk factors (Herrenkohl, Hill, Chung, Guo, Abbott, & Hawkins, 2003; National Center for Injury Prevention and Control, 2002). In other words, studies of *resilience* that may clarify sources of protection have largely been neglected. Furthermore, most of the work on aggression concerns children (Yoon, Barton, & Taiariol, 2004) and African American samples have been limited to primarily urban youth (Cadwallader et al., 2002; Reese, Vera, Thompson, & Reyes, 2001; Spoth, 1997; Tolan, Gorman-Smith, & Henry, 2003; Wilkinson & Fagan, 2001; Xie, Farmer, & Cairns, 2003). Yet, due to the numerous biological and environmental changes, adolescence is a *turning point* in behavioral development (Roeser & Peck, 2003). Moreover, several risks for aggression (e.g., poverty) and violence-related injury (e.g., weapons carrying) are evident among rural African American adolescents (e.g., Cunningham, Henggeler, Limber, Melton, & Nation, 2000; Estell, Farmer, Cairns, & Clemmer, 2003;

Jolliffe, 2002; McLoyd, 1990b). Though research typically assumes uniform risk across groups of individuals, current developmental theory posits and *person-oriented analyses* demonstrate that risk within a particular population is variable (Farmer et al., 2004). In particular, unique combinations of developmental risks and supports cluster in individuals as *correlated packages* (Cairns & Cairns, 1994). Thus, this longitudinal investigation examined protective factors for aggressive behavior in rural African American adolescents by incorporating resilience and person-oriented perspectives (Cadwallader et al., 2002; Spoth, 1997; Wilkinson & Fagan, 2001). Specifically, this study sought to determine if several factors during middle school (i.e., 7th and 8th grades) functioned as buffers against aggressive behavior in high school (i.e., 9th grade) (see Figure 1).

Several related factors underlie the need for the proposed study. First, aggression represents an important and serious issue facing both our educational system and society. In addition, teachers and students frequently experience aggression which in turn adversely impacts several important educational and other outcomes. Second, limitations in our knowledge about buffers against aggression and moderators that may be specific to different populations hinder the development of effective interventions (Luthar & Cicchetti, 2000). Thus, identifying protective factors for rural African American youth is critical (Farmer et al. 2004; Murry & Brody, 1999). Recently, an alternative and complementary model to the dominant deficit paradigm, the *strength perspective*, has emerged. This new conceptual framework offers a research approach that can address our scarcity of knowledge about protective factors for aggression.

Educational and Social Significance of Aggression

Several research findings indicate that aggression is a significant educational issue. For one, a substantial portion of the aggressive and violent acts experienced by adolescents occur on school grounds (U. S. Departments of Education and Justice, 2004). In addition, aggression has a strong relationship with several important educational outcomes. For example, aggression robustly predicts lower achievement, dropout, and school adjustment problems (Chen, Chen, & Kaspar, 2001; Elinoff, Chafouleas, & Sassu, 2004; Mahoney & Cairns, 1997; Mahoney, Cairns, & Farmer, 2003; Risi, Gerhardstein, & Kistner, 2003). Finally, bullying, the most frequent form of school violence, can have serious negative effects on students' psychological and physical functioning (Ahmed & Braithwaite, 2004; Ma, 2002; Rigby, 2000; Smith, Ananiadou, & Cowie, 2003; Stockdale, Hangaduambo, Duys, Larson, & Sarvela, 2002). For instance, being bullied is a risk factor for adolescent depression (Denny, Clark, Fleming, & Wall, 2004) as well as lower achievement (Schwartz & Gorman, 2003). Bullying is also related to depression for those who bully (Seals & Young, 2003).

Aggression is also a significant social issue. Specifically, society burdens most of the financial and other costs associated with aggression (Cohen, Miller, & Rossman, 1994). In addition, many in the public and private sectors are increasingly alarmed about aggression in schools. For example, some legislative bodies have passed laws requiring schools to have an anti-bullying policy (Craig & Pepler, 2003; Smith et al., 2003; Stockdale et al., 2002). Student aggression has also become a major concern of the American public (Farmer, Leung, Pearl, Rodkin, Cadwallader, & Van Acker, 2002; Pellegrini, 2002; Smith, 2004). However, our views are often skewed by a few sensationalized incidences. In the United States, this

may be driven by the horrific acts of school violence in the 1990's. Thus, a better litmus test of adolescent aggression may perhaps be found in the perceptions and experiences of key school members, teachers and students.

According to a stratified sample of 1000 educators across the United States, teachers reported that violence affects students in several respects. These include students' desire to attend school and participate or pay attention in class (Price & Everett, 1997). Teachers also noted that the most frequent forms of school violence constituting major problems were physically and verbally aggressive behavior. National statistics also indicate that between 1992 and 2000 approximately half of the violent crimes incurred by adolescents had taken place at school (U. S. Departments of Education and Justice, 2004). Other data reveal that rural students, in particular, are also subjected to, affected by, and engaging in aggressive behaviors. Specifically, bullying is evident among rural students and it is related to their perceptions that school is unsafe (e.g., Pellegrini & Bartini, 2000; Stockdale et al., 2002). In addition, weapons at school are a problem in a substantial portion of rural districts (Bachus, 1994). Furthermore, some rural African American students carry weapons (e.g., Cunningham et al., 2000; Estell et al., 2003).

The Strength Perspective

The identification of modifiable factors operating as natural sources of support and strength is essential for intervention and prevention efforts (Farmer et al., 2005). A focus on protective factors, as opposed to deficits and differences, is a distinct feature of the strength perspective (Maton, Dodgen, Leadbeater, Sandler, Schellenbach, & Solarz, 2004). The move away from an exclusive deficit perspective to a strengths-based approach is now evident across many disciplines including education (e.g., Farmer et al., 2005; Kana 'iaupuni, 2004),

psychology (e.g., Cairns & Cairns, 1994; Maton, Schellenbach, Leadbeater, & Solarz, 2004), and social work (e.g., Graybeal, 2001; McMillen, Morris, & Sherraden, 2004).

Additionally, those concerned with the development of minority (e.g., Garcia Coll, 1990; Garcia Coll et al., 1996; McLoyd, 1990a) and rural youth (e.g., Howley, 2003; Howley & Gunn, 2003; Larson & Dearmont, 2002) have also argued against the exclusive use of the deficit orientation. The impetus among rural researchers and practitioners to adopt the strength perspective stems from several factors. For example, many assumed deficiencies in rural students, such as lower math achievement, are not supported when the available evidence is examined (Howley & Gunn, 2003). In addition, rural students who do not attend college may be choosing to fulfill local workforce needs rather than having deficiencies in motivation or educational aspirations (Burnell, 2003).

The increasing use of the strength perspective has been attributed to the paradigm shift associated with the emergence of *resilience* (Masten, 2001). Specifically, this construct altered the attention of many researchers away from the medical or disease model. Alternatively, many began trying to understand the supports or buffers that prevent disorder and, moreover, allow many to succeed in the face of serious adversity and stress. Identifying and utilizing potentially modifiable risk and protective factors to address major adolescent problems has now become the basis of the public health model (Hawkins, Catalano, & Arthur, 2002). Furthermore, this orientation has begun to be effectively employed by the relatively new field of prevention science to, for example, reduce violence and other serious adolescent problems.

Drawbacks with exclusively adopting the strength perspective can potentially be problematic as well. For example, Ginwright and Cammarota (2002) argue that sole reliance

on this largely white middle-class notion ignores the harsh realities that many youth experience. Resilience researchers and others have also echoed a similar concern (e.g., Doll & Lyon, 1998). Specifically, focusing on both the reduction of risk factors and augmentation of protective or supportive factors is required for prevention and intervention efforts to be effective (Masten & Coatsworth, 1998). In addition, Rutter (1985) cautions that though protective factors may buffer risk the difficult experiences encountered by such individuals are still typically quite unpleasant. Thus, a more balanced perspective is seemingly in order. However, our understanding of protective factors against aggression is, as previously mentioned, very limited.

Summary

This study of resilience sought to identify protective factors against aggression in rural African American adolescents. Specifically, several factors during middle school (i.e., 7th and 8th grades) were examined as potential buffers of aggression in high school (i.e., 9th grade). The conceptual model underlying the current investigation is presented in Figure 1. In addition, this longitudinal study sought to identify modifiable, culturally relevant, and natural sources of support or protection. Examining protective factors of this nature were undertaken to facilitate the potential utility of results for future intervention and prevention efforts.

Resilience is a developmental phenomenon reflecting discontinuity. In other words, resilient outcomes are apparent when individuals who have risk for poor outcomes at an earlier point in time evidence some change and do better than expected. As such, research of this nature should encompass a developmental framework. Moreover, current developmental theory and person-oriented risk research indicates that risk is not the result of a single variable nor is it uniformly distributed within different populations. Rather, multiple risk

factors interact and are evident as correlated packages to produce risk. Thus, risk should be examined in a manner that accounts for several key risk factors. Though adaptation is possible across the life course, focusing on periods when change is more likely (i.e., infancy and adolescence) is also prudent. In order to ensure the applicability of findings from resilience research, the identification of sources of support that are readily accessible and can be employed in prevention efforts is essential. Additionally, basic research on resilience has demonstrated that protective factors of this type have the most robust buffering effect.

CHAPTER II

LITERATURE REVIEW

Poverty is one of the best predictors of various developmental outcomes (Sameroff &

Gutman, 2004). Moreover, it is a risk factor for aggression (Skinner, Elder, & Conger, 1992;

Wadsworth & Compas, 2002), and one that is rife among rural African American youth in

the South (Brody, Dorsey, Forehand, & Armistead, 2002; Brody, Kim, & Murry, 2003;

Brody, Murry, Kim, & Brown, 2002). Furthermore, the youth involved in the current

investigation reside in two of the chronically poorest rural counties in the United States. As

such, the sample as a whole involved in the current study could be considered to have a

substantial amount of risk for aggression. Consequently, understanding the nature of rural

poverty is essential. Additionally, some basic principles of developmental theory encompass

important implications for how risk should be conceptualized and examined. These principles

also indicate when change is most likely to occur and that adaptation is possible. The

literature on developmental events during adolescence and core notions related to resilience

both reflect and build on these implications. Finally, resilience research has revealed some

characteristics of robust sources of support. These criteria can guide the identification of

possible protective factors against aggression for rural African American adolescents.

Poverty in Rural Communities and Schools

Poverty is a potent contextual factor that directly and indirectly impacts development (McLoyd, 1990b, 1998). Though multiple factors contribute to risk, research has demonstrated that socioeconomic status is one of the most powerful single predictors of a host of poor developmental outcomes (Sameroff & Gutman, 2004). Unfortunately, many rural youth experience economic deprivation. In fact, the majority of impoverished Americans live in rural settings (Albrecht, Albrecht, & Albrecht, 2000; Evans & English, 2002; Friedman & Licther, 1998; Tickamyer & Duncan, 1990). Additionally, over 95% of the poorest and chronically impoverished counties in the United States are rural (Menanteau-Horta & Yigzaw, 2002; Save the Children, 2002). Furthermore, rural poverty is 10 to 30% greater than that in urban settings (Howley, 2003), yet the federal government spends more on financial assistance for urban residents (Fluharty, 2002). Moreover, a higher percentage of urban spending is for bolstering the community supports and resources that are sorely lacking in and could potentially offset the negative effects of rural poverty.

Recent economic trends have not provided any financial relief to rural communities and residents as well. Specifically, financial growth was the norm for most of the nation during the previous decade. However, rural economies did not experience any significant gains and most actually worsened (Friedman & Lichter, 1998). This decline has been attributed to changes in American markets from a manufacturing to a global and technology-based service economy (Fluharty, 2002; Tickemyer & Duncan, 1990). As a result, the economic or poverty gap between those in rural and urban communities has grown (Fluharty, 2002; Ghelfi, 2002). Rural employment rates actually did improve but the jobs were low paying and typically lacked any benefits (Fluharty, 2002). Leading sociologists have deemed

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such poor job opportunities as a leading cause of the chronic poverty in rural America (e.g., Tickamyer & Duncan, 1990).

Other social factors contribute to and are involved in rural poverty as well. Some individuals in impoverished rural areas are actively oppressed (Chenoweth & Galliher, 2004). Specifically, ethnic and racial as well as gender discrimination often abound in rural areas. Such practices are frequently used to ensure access to the limited available resources and jobs by and for those with power. In addition, the amount of oppression levied on African Americans in particular is inordinately greater than that encountered by other minority groups in the United States (Fisher, Wallace, & Fenton, 2000). Thus, the enduring segregation and discrimination have been identified as another cause of the extreme poverty encountered by many African Americans in the rural South (Garcia Coll et al., 1996; Harrison, Wilson, Pine, Chan, & Buriel, 1990; Tickamyer & Duncan, 1990).

Financial problems are also apparent in a large portion of rural schools. Specifically, rural schools receive a disproportionately smaller amount of the government funds that are spent on education (Howley, 2003; Save the Children, 2002). Rural districts also have limited access to alternative sources of funds and their schools are more apt to be closed when funding shortages emerge. In addition, rural schools more often provide Chapter I services (National Educational Association, 1998). As a result of these financial and related problems, Beeson and Strange (2003) have declared that many rural educational systems are in a state of urgency. This designation occurred due to, for example, the low rural per capita income, teacher salaries, and available technology in these schools.

There is a large amount of variation evident within the distribution of rural poverty. First, this variance is apparent across geographic regions. Specifically, the Appalachia,

Mississippi Delta, and southern Black Belt regions evidence the highest rates of childhood poverty across rural areas and the country as a whole (Friedman & Lichter, 1998). However, the most consistent and severe rural poverty has always been in the South (Tickamyer & Duncan, 1990). Second, rural poverty is differentially distributed across different ethnic and racial groups within rural areas. Specifically, African American families have the highest rates and chronic patterns of poverty among rural families (Jolliffe, 2002; McLoyd, 1990b). In fact, the poverty rate among rural African American families is nearly twice that of rural White families. In summary, poverty is a tremendous environmental adversity faced by many rural African American youth in the South (Brody, Dorsey, et al., 2002; Brody, Murry, et al., 2002; Brody et al., 2003).

The rural schools and communities in the current investigation are from two counties in a state within the southern Black Belt region. In addition, rural education in the state involved in this study has been deemed as among those in the most urgent need of attention from policymakers by Beeson and Strange (2003). Furthermore, these two counties are among the most severely and chronically poor counties in the country. Due to the previously mentioned potent and numerous direct and indirect effects of poverty on youth (McLoyd, 1990b, 1998; Sameroff & Gutman, 2004), identifying existing sources of support or protection in the lives of this sample and the population they represent is critical.

Developmental Theory

Current developmental theory and resilience researchers contend that developmental outcomes are the result of complex and bi-directional processes over time (Bergman & Magnusson, 1997; Cairns & Rodkin, 1998; Cicchetti & Rogosch, 1997; Magnusson, 2003; Masten, 2001; Masten, Hubbard, Gest, Tellegen, Garmezy, & Ramirez, 1999). Furthermore,

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these reciprocal interactions occur between several factors or variables within individuals and the context in which they are embedded. Within the individual, this entails a wide array of factors including biology, cognition, and emotion. At the contextual level, a host of proximal and distal environmental influences are also involved. Moreover, the individual is an integrated whole comprised of various *configurations* of factors at multiple levels that collectively function and develop as a totality (Bergman & Magnusson, 1997; Magnusson, 2003). Thus, individuals are conceptualized as a *person-in-context system*.

These theoretical notions concerning the integrated totality and reciprocal interactions within the person-in-context system encompass several important implications. First, individuals are an adaptive, responsive, and potentially dynamic organism. Specifically, we are capable of change in response to the primary stimuli that provoke and require system transformation (Bergman & Magnusson, 1997; Magnusson, 2003). The principal impetus for adaptation is found in biological and environmental events. Furthermore, this adaptability is inherent and necessary to prevent complete malfunction of the individual system.

These ideas are particularly informative for the current investigation as the concept of adaptation indicates that change in behavioral development can occur. In other words, it is possible for individuals with risk for poor outcomes to adapt and attain resilient outcomes. In addition, this developmental implication suggests how and when adaptation is likely to occur. Specifically, change is most plausible when significant biological and environmental events occur. Given that adolescence is a time of many intense biological and environmental changes, this developmental period harbors significant opportunities for adaptation (Gutman, Sameroff, & Eccles, 2002; Roeser & Peck, 2003).

Second, different variables within or elements of the person-in-context system derive meaning from their interaction with other components in the individual (Bergman & Magnusson, 1997). Thus, we cannot understand the functioning of individuals by examining single variables because within the person-in-context system these are interrelated and reciprocally affect each other as correlated packages (Cairns & Cairns, 1994; Magnusson, 2003). Research has supported this in relation to the construct of risk as, for example, multiple stressful factors and various problems have been found to rarely occur in isolation (Gutman et al., 2002; Sameroff & Gutman, 2004; Stattin & Magnusson, 1996). Rather, risk factors tend to co-occur and cluster within individuals. Several investigations have demonstrated that accounting for multiple risk factors enhances researchers' ability to predict developmental outcomes (Sameroff & Gutman, 2004).

This clustering of risk factors is apparent in regards to aggression. A youth's previous level of aggression is the best predictor of future aggression and other important outcomes (Cobb, Cairns, Miles, & Cairns, 1995; Feigelman, Howard, Xiaoming, & Cross, 2000). However, early aggression has an even stronger relation to poor developmental outcomes when other risk factors it co-occurs with are also identified (Bergman & Magnusson, 1997; Cairns & Cairns, 1994; Farmer et al., 2004; Stattin & Magnusson, 1996). Additionally, several studies have found that multiple risk profiles consisting of aggressive, academic, and/or social (e.g., popularity) problems are more predictive of various outcomes than high aggression alone (e.g., Cairns & Cairns, 1994; Farmer, et al., 2004; Mahoney & Cairns, 1997; Xie, Cairns, & Cairns, 2001). Consequently, the current investigation sought to identify multiple risk profiles and deemed these as the high risk condition (see Figure 1).

Those with one or fewer risk and/or strengths were assigned to the moderate risk condition. Finally, the low risk condition included profiles of multiple strengths (i.e., two or more).

Adolescent Developmental Period

Adolescence typically marks the onset of several biological and environmental events which stimulate the person-in-context system to adapt. Specifically, a corpus amount of literature indicates that early adolescence is a period of great change, perhaps second only to infancy (National Research Council and Institute of Medicine, 2002). In addition, these changes are evident across multiple levels of the person-in-context system. At the biological level, the onset of puberty leads to drastic hormonal and neurological changes that directly and indirectly affect early adolescents' behavior, emotions, and cognitive abilities.

Major changes typically occur at the contextual level as well (National Research Council and Institute of Medicine, 2002). For adolescents, these are often are related to the move from elementary to middle school that most American students experience. The middle school transition is an environmental event that is associated with changes in students' relationships with peers, teachers, the institution of school itself, and family. As a result, academic engagement and achievement wane for many during early adolescence. In addition, the time spent in and opportunities for involvement or engagement in extracurricular activities afforded by the school and other settings typically expand.

Coupled with the previously discussed developmental principles, this knowledge on early adolescence has important consequences for the design of the current study. Specifically, there is a temporal convergence in early adolescence of multiple factors apparent in the two primary initiators of change for the person-in-context system, biological and environmental events (e.g., new opportunities for extracurricular participation and access

to different peers). Consequently, this period is a crucial point in development and perhaps encompasses unprecedented possibilities for change (Gutman et al., 2002). Furthermore, depending on the nature of this adaptation resilient outcomes may be achieved. This opportunity led Roeser and Peck (2003) to label early adolescence as a potential *turning-point* in development. Specifically, these potentials may lead to a reorganization or consolidation of behavior within the person-in-context system.

Moreover, this period and resultant developmental outcomes may have far reaching and long-term consequences. In other words, the experiences associated with early adolescence can set individuals on new paths of behavioral development. Furthermore, these paths may be either adaptive or problematic. However, early adolescent changes may also sustain previous developmental trajectories for some individuals (i.e., developmental stability). Within a resilience framework, those factors which are associated with turning away from a previous profile of risk and toward better than expected outcomes are inferred to have served a protective function. Conversely, those variables that sustain or exacerbate early risk are deemed to have performed a vulnerability or risk role.

Resilience Research

In the late 1960s and throughout the 1970s, risk researchers began to uncover some contradictory findings that stimulated a reevaluation of their expectations. Specifically, many individuals who had experienced stressful circumstances or had previously exhibited behaviors that were highly predictive of future problems appeared to be thriving (Rutter, 1985). Consequently, researchers began to work on the identification of factors that seemed to protect *at-risk* individuals from poor outcomes (Garmezy, 1985). This new empirical focus

sought to identify both risk and protective factors and led to an accretion of knowledge within what is known as the study of resilience (Leshner, 1999).

Definition of Resilience. Currently, there is not a universally agreed upon definition of resilience (Masten & Coatsworth, 1998). However, resilience generally refers to developmental outcomes which reflect positive adaptation or competence while having experienced some antecedent risk (Luthar, Cicchetti, & Becker, 2000; Masten & Coatsworth, 1998). Moreover, this antecedent risk condition must constitute a significant threat or risk to positive development. Thus, resilience is a multidimensional construct and does not simply refer to general positive adaptation or competence (Luthar et al., 2000; Mahoney & Bergman, 2002). Rather, resilience is only applicable when a better than expected developmental outcomes (i.e., competence) is apparent after a significant threat to positive development (i.e., antecedent risk) has been incurred. In other words, resilient outcomes may be thought of as errors of prediction when those who are at-risk of some poor developmental outcome actually end up better off than anticipated and appear competent (Cairns & Rodkin, 1998).

Antecedent Risk. As previously discussed, single and multiple problem configurations constituted varying degrees of antecedent risk in the current investigation. Again, this stems from current developmental theory that multiple risk factors interact as correlated packages (Bergman & Magnusson, 1997; Cairns & Cairns, 1994). Furthermore, variables derive their meaning from the other variables they interact with and we cannot divorce them from the totality of the person-in-context system. In addition, empirical evidence has demonstrated that comorbidity in problems such as aggression is the norm (Sameroff & Gutman, 2004; Stattin & Magnusson, 1996). Moreover, conglomerations of risk factors are more predictive of developmental outcomes.

Purpose of Resilience Research. An essential goal of resilience research is to identify factors that may be contributing to improved developmental outcomes for individuals who have experienced a significant risk to development (i.e., protective factors) (Garmezy, 1985; Luthar & Cicchetti, 2000; Masten, Garmezy, Tellegen, Pellegrini, Larkin, & Larsen, 1988; Rutter, 1987). However, the role a specific variable serves is not the result of something intrinsic to the variable itself. Rather, the function a variable serves is the result of complex interactions between many variables within and across different levels of the person-in-context system (Bergman & Magnusson, 1997; Kaplan, 1999; Magnusson, 2003; Masten et al., 1988; Rutter, 1987). Consequently, the same variable can be a source of risk or protection when examined in relation to different outcomes of interest or when combined and interacting with a unique set of other variables.

Protective and Risk Factors. Given the above, determining if a specific factor serves a protective or risk function is a data-driven decision. Similar to the construct of resilience, *protective factors* also has several definitions, uses, and models (Luthar et al., 2000). Luthar and colleagues (Luthar, 1993; Luthar et al. 2000) have provided guidelines that were used in the current investigation to interpret the function of hypothesized protective factors. While accounting for the antecedent risk if results indicate that a certain factor is related to better developmental outcomes or greater adaptation (e.g., lower aggression), then it can be deemed a protective factor. Within a regression framework, this is demonstrated by a significant main effect. Others have labeled this a *compensatory* (e.g., Garmezy et al., 1984) or *promotive* effect (Sameroff, 1999). In contrast, factors that predict poor outcomes are *risk* or *vulnerability factors* (Luthar et al., 2000).

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More differentiated terminology may be applied to interactions that reveal a protective role. Specifically, factors that interact with the antecedent risk may be labeled *protective-stabilizing*, *protective-enhancing*, or *protective but reactive* (Luthar, 1993; Luthar et al. 2000). Protective-stabilizing and protective-enhancing factors are apparent when a factor relates to the maintenance or improvement of competence, respectively, when the antecedent risk is present. Protective but reactive factors predict better outcomes but less so for high risk individuals.

Characteristics of Robust Sources of Support. For individuals to be successful and attain positive outcomes, the essential sources of support that could be capitalized on in applied efforts should be identified. These supports or buffers may likely be found in schools, peers, families, environmental opportunities, and characteristics of the individual (Cairns & Cairns, 1994; Garmezy, 1985). Furthermore, the pioneering longitudinal resilience research by Werner and Smith (1982, 1992, 2001) demonstrated that less contrived and more naturally present and accessible sources of support consistently displayed the most potent buffering effects. Additionally, the identification of modifiable sources of support is also essential for subsequent prevention efforts (Fraser & Allen-Meares, 2004).

In accordance with these findings, a less artificial source of support that is often accessible to students has recently demonstrated a protective effect. This potential protective factor is involvement in extracurricular activities at school (e.g., Mahoney, 2000; Mahoney & Cairns, 1997). Participation in church activities is another source of support meeting the above criteria and that additionally has cultural relevance for the current sample. Finally, school bonding is a factor that has been shown to be modifiable and protective against several poor outcomes.

School Extracurricular Activities. Participation in extracurricular activities at school has been found to relate to better status on various educational outcomes across numerous investigations (Gilman, Meyers, & Perez, 2004; Holland & Andre, 1987). Furthermore, this relationship typically holds while accounting for economic and other demographic factors (e.g., Jordan & Nettles, 2000; McNeal, 1995; Regnerus & Elder, 2003). However, substantially less research on extracurricular activities has examined relations to non-academic outcomes. Results from some recent studies have indicated that involvement in school activities may serve either a promotive or a protective function.

This buffering effect has been evident in relation to substance use (Borden, Donnermeyer, & Scheer, 2001), dropping out of school (Mahoney & Cairns, 1997; Mahoney, Cairns, & Farmer, 2003), and various anti-social behaviors (Mahoney, 2000; Mahoney & Stattin, 2000). Unfortunately, this research has, in general, rarely involved students who may be considered at-risk (Bartko & Eccles, 2003; Jordan & Nettles, 2000; Mahoney & Cairns, 1997). However, findings from a few of the previously referenced studies suggest a protective role. Specifically, participation in school activities has been more beneficial for students at-risk of poor outcomes (Mahoney & Cairns, 1997; Mahoney et al., 2003).

Church Activities. Minority and rural youth often have a unique culture that might enhance interventions if acknowledged and utilized (Barbarin, McCandies, Coleman, & Atkinson, 2004). One key cultural resource for minority and rural youth is religion (Barbarin, 1993; Barbarin et al., 2004; Brody, Stoneman, Flor, & McCrary, 1994; Christian & Barbarin, 2001; Larson & Dearmont, 2002). Specifically, religious activity has been relied upon to cope with the racism and segregation encountered by African Americans in the rural South (Taylor & Chatters, 1991). Moreover, recent evidence indicates that rural, African American,

and Southern youth tend to be more religious (Taylor, Chatters, Jayakody, & Levin, 1996; Wallace, Forman, Caldwell, & Willis, 2003). In addition, rural African Americans are more involved in church activities than African Americans in urban areas (e.g., Ellison & Sherkat, 1995; Taylor, 1988). Finally, living in the South and being female is also related to higher religiosity among African Americans (Taylor et al., 1999).

Some research on church activities indicates that this may function as a source of support and protection. Within a nationally representative sample of adolescents, church involvement has a stronger influence on educational outcomes for those in lower-income neighborhoods (Regnerus & Elder, 2003). In addition, parental religious activities has a direct inverse effect on substance use and aggression among rural African American adolescents (Brody, Stoneman, & Flor, 1996; Wills, Gibbons, Gerrard, Murry, & Brody, 2003). High achieving African American adolescents living in poverty participate in more religious activities (Gutman & McLoyd, 2000). Church attendance is also related to less involvement in serious crime for African American youth in disordered neighborhoods (Johnson, Jang, De Li, & Larson, 2000)

School Bonding. In a protective role, a high level of school bonding or emotional engagement is related to a decline in and desistance of various antisocial behaviors (Ayers, Williams, Hawkins, Peterson, Catalano, & Abbott, 1999; Maddox & Prinz, 2003). School bonding also serves a protective function for those who are highly at-risk of later interpersonal violence and injury, namely aggressive students (O'Donnell, Hawkins, & Abbott, 1995). Furthermore, interventions within randomized control group experimental designs have found that students' bonding to school can be modified and improved. Moreover, this has subsequently led to both short- and long-term reductions in, for example,

suspension and expulsion rates (Hawkins, Doueck, & Lishner, 1988) and aggressive behavior (O'Donnell et al., 1995).

Changes in and Measurement of Adolescent Aggression

Peer nominations are generally considered the most reliable and valid measure of aggression largely because these are multiple observations from multiple raters (Huesmann, Eron, Guerra, & Crawshaw, 1994). In addition, several factors make it especially difficult for teachers or other adults to observe and accurately report on adolescents' use of aggression in particular. First, students in middle and high school typically do not have a single teacher for the entire day. Rather, middle and high school teachers only have the opportunity to observe students' behavior for a very limited portion of the school day. Second, rates of aggression decrease during adolescence (Coie & Dodge, 1983). This limited frequency further reduces the chance for any individual teacher to observe students' use of aggression (Pellegrini & Bartini, 2001). Furthermore, as children age they are less likely to engage in aggressive behaviors when they know they are being watched by adults or teachers (Coie & Dodge, 1998).

Finally, the form and function of aggression changes with age (Coie & Dodge, 1998; Rose, Swenson, & Waller, 2004) and such that peer nominations are likely more valid measures. In part, these changes stem from normal developmental processes including adolescents' improved cognitive, emotional, and social skills and the increasing importance of their relationships with and status among peers. As a result, aggressive behaviors become less physical but more covert and social-oriented across adolescence (Coie & Dodge, 1998; Trembly, 2006). During this period, aggression becomes a central means by which adolescents manage their relations with other students in several respects.

For one, adolescents' increasingly use aggression to sustain or improve their perceived popularity and dominance status (Adler & Adler, 1998; Pelligrini & Long, 2002; Rodkin, Farmer, Pearl, &Van Acker, 2000). Accordingly, longitudinal investigations have found that physical aggression is inversely related to perceived popularity while relational aggression is not associated with perceived popularity in late elementary school (LaFontana & Cillessen, 2002). However, across middle school physical and relational aggression both are positively related to perceived popularity (Cillessen & Mayeux, 2004; Prinstein & Cillessen, 2003). Adolescents' efforts to improve their status are also partly undertaken because of their growing interest in relationships with members of the opposite sex. Specifically, research indicates that increasing one's dominance status makes boys more popular and attractive to girls (Pellegrini & Long, 2003).

Second, adolescents also use aggression to manage the behavior of members and the dynamics within their own peer group as well as their peer group's relationships to and interactions with other groups (Farmer, 2000a). Within peer groups, aggression may be directed towards particular group members who may be impeding the group's attainment of some desired goal (Bukowski & Sippola, 2001). In addition, aggression is used by individuals and groups to sustain or improve their status within their and over other groups (Farmer, 2000a). As a result, aggression is often used while other students are present but when teachers or other adults are not (Pellegrini, Bartini, & Brooks, 1999).

To sum, middle and high school teachers have few chances to observe adolescents' aggressive behavior. The changing use, function, and nature of aggression also make it unlikely that even the collective reports of all teachers or other adults within a school accurately reflect adolescents' aggression. In accordance with the above, research has shown

that correlations between different informants' ratings of aggressive and externalizing behaviors are lowest in adolescence (Achenbach, McConaughy, & Howell, 1987). Though correlations between peer and teacher reports of aggression are typically highest these are only moderate in strength (Little, Brauner, Jones, Nock, & Hawley, 2003). In addition, middle school teachers' ratings of students' aggression are moderately correlated with research assistant's ratings of aggression observed across multiple settings (Pelligrini & Bartini, 2000). However, adolescents' diary recordings of aggression are only related to self-ratings and peer nominations indicating that teacher and student reports are different.

Assumptions of the Current Investigation

Stemming from the above, it was assumed that participants' behavior at the end of elementary school (i.e., spring of 6th grade) is the manifestation of complex, dynamic, bi-directional, and reciprocal interactions. Moreover, these interactions have occurred between multiple levels of the person-in-context system over time. In addition, the resultant development from these mechanisms was expected to be expressed as correlated packages of variables at the individual level. Furthermore, it was anticipated that several distinct *early adjustment configurations* (i.e., correlated packages of variables) would be identified that placed participants' either at low, moderate, or high risk for poor developmental outcomes in the future.

It was also believed that early adolescence and the experiences during middle school encompass a substantial opportunity for reorganization of the person-in-context system. This assumption was partially derived from the understanding that adolescence is a time of tremendous change for the person-in-context system. The position of modern developmental theory that environmental and biological changes during adolescence encompass the most

potent agents of adaptation in the person-in-context system also informed this assumption. Thus, the overarching aim of this study involved identifying factors during middle school (i.e., 7th and 8th grade) which moderated or buffered against aggressive behavior in 9th grade.

Hypotheses

To address the overarching aim of this study, several specific hypotheses were examined and these included the following:

1. There will be distinct early adjustment configurations identified in the spring of 6th grade that constitute conditions of low (i.e., multiple strength profiles), moderate (i.e., profiles with no more than one strength or risk), and high (i.e., multiple problem profiles) risk for subsequent aggression.

2. There will be differences between the low, moderate, and high risk conditions on theoretically related variables and these will be in expected directions. Specifically, those in the low risk condition are expected to have higher self-reported academic competence and popularity, lower aggression, and higher school achievement in 7th grade than those in moderate and high risk conditions. In addition, it is predicted that those with moderate risk will have higher self-reported academic competence and popularity, lower aggression, and higher school achievement in 7th grade than those in the high risk group.

3. While accounting for risk conditions, the proposed protective factors (i.e., school activities, church activities, and school bonding) will serve a protective role for aggression in 9th grade.

CHAPTER III

ANALYTIC FRAMEWORK

To examine the hypotheses underlying this study, methods that were commensurate with developmental theory and our understanding on the nature of risk were needed. An alternative analytic approach has recently emerged that met these conditions. Specifically, person-oriented analyses consist of several statistical methods that can be used to identify early adjustment configurations indicative of correlated packages of risk and supports. In addition, this analytic approach is appropriate for longitudinal studies. Moreover, pattern-centered analyses, a specific form of longitudinal person-oriented analyses, map onto the typical design of resilience research and are congruent with current views of risk. Consequently, recent steps outlined by proponents of this approach informed the design of the current investigation.

Person-Oriented Analyses

To determine whether specific factors function as buffers against risk, two broad analytic methods have been employed in resilience research. These analytic approaches are *variable-oriented* and *person-oriented analyses* (Bergman & Magnusson, 1997; Cairns & Rodkin, 1998; Magnusson, 2003; Masten, 2001; Masten et al., 1999). Variable-oriented analyses encompass the more traditional or standard analytic methods that have historically dominated research on development and resilience (Bergman & Magnusson, 1997; Cairns &

Rodkin, 1998; Magnusson, 2003; Masten, 2001; Masten et al., 1999). These include

numerous procedures that determine the existence of significant relationships (e.g.,

correlation, regression, and structural equation modeling) or differences (e.g., analysis of

variance) between or within variables. Furthermore, this analytic approach is typically used

in population-based studies. Thus, the goal of variable-oriented analyses is to determine the

relationship between or differences on some variables for an entire group of individuals (e.g.,

those living in poverty or girls versus boys).

The second broad set of analytic tools used in developmental and resilience research,

person-oriented analyses, share an explicit goal. That goal is the identification of unique

profiles or relations among variables within individuals rather than across or between

individuals (Bergman & Magnusson, 1997). Identifying unique configurations of variables

within individuals is undertaken in order to isolate participants into more homogeneous

subgroups. In addition, these subgroups are ascertained to account for the previously

discussed totality and meaning derived from combinations of variables as well as the

relations between variables within individuals. Specifically, these subgroups are

distinguished by a unique profile of functioning across several aspects of the person-in-

context system. Though theoretically a large number of profiles are possible, the number of

meaningful configurations evident is finite (Bergman & Magnusson, 1997).

As previously discussed, holistic profiles indicative of risk are in fact more predictive

of poor outcomes (Bergman & Magnusson, 1997; Cairns & Cairns, 1994; Farmer et al.,

2004; Stattin & Magnusson, 1996). In addition, this profiling may be completed at one, or

several, levels of the person-in-context system. However, homogenous groups are often

formed at one level only because obtaining configurations at several levels requires rather

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large sample sizes (Mahoney, 2000). Furthermore, studying all levels of the person-in-context system is unrealistic and may also obfuscate findings and interpretations of results (Magnusson & Cairns, 1996). Thus, researchers should concentrate on one or, at most, a few levels within individuals.

Specific statistical methods within the person-oriented approach include log-linear modeling, latent class analysis, I-States as Objects Analysis, cluster analysis, and longitudinal pattern analysis (Bergman & Magnusson, 1997; Mahoney & Bergman, 2002). In addition, theoretically derived or otherwise meaningful cut-off scores may also be used to determine individuals' profile or configuration across several variables. As discussed above, this latter approach has been employed in risk and resilience research (e.g., Farmer et al., 2004; Masten et al., 1999). Other research of this nature has also utilized cluster analysis procedures (e.g., Mahoney, 2000; Mahoney & Cairns, 1997).

Regardless of the variables and classification method used, it is likely and acceptable to have some cases that do not readily exhibit a meaningful profile (Cairns & Rodkin, 1998). Furthermore, identifying individuals' configurations can be undertaken in relation to a set of predictors, outcomes, or other variables (Bergman & Magnusson, 1997). As previously mentioned, profiles should be identified within the same level (e.g., individual level) of the person-in-context system rather than across levels (e.g., individual and peer group) otherwise meaningful patterns may be difficult to discern (Magnusson, 2003). After homogenous patterns have been identified, variable-oriented procedures are used to address other specific research questions of the study.

The distinction between the variable- and person-oriented approaches is not impregnable. Furthermore, these methodologies are complimentary and have their own

strengths that may be desirable depending on the focus of a specific study (Cairns & Rodkin, 1998; Masten et al., 1999). Both approaches are, for example, used to study differences between groups of individuals. In addition, both seek to find variables that are interrelated as a means to clarify individuals' patterns of development (Bergman & Magnusson, 1997). However, a key difference between these lies in a central tenet of the person-oriented approach. Specifically, efforts are taken to use several measures of different domains of functioning in order to identify more homogenous subgroups of individuals in person-oriented analyses (Mahoney & Bergman, 2002; Von Eye & Bergman, 2003). These profiles or configurations are obtained as a means to capture a more complete or holistic picture of the totality within individuals.

    Person-Oriented Analyses and Gender. Girls and boys view and use overt aggression for different reasons. For example, aggression is more central to boys' identity and status among their peers (Pellegrini, 2003). In addition, early adolescent girls perceive play fighting as such but boys see it as a means to establish dominance or status and boys consider overt aggression more positively than girls (Crick & Werner, 1998; Pellegrini, 2003). Thus, overt aggression and indices of status or popularity may serve different roles and be uniquely interrelated for girls and boys (Cillessen & Rose, 2005; Rose et al., 2004). Results capturing the relationship between overt aggression and popularity have, however, been mixed with studies indicating it is stronger for boys, higher for girls, and even no difference (Rose et al., 2004).

    The above suggests that, at times, overt aggression and popularity could be part of distinct systems or unique profiles for girls and boys. Consistent with this, different configurations have emerged for girls and boys. Yet, similar to the relationship of overt

aggression and popularity, results have also had some inconsistency. Specifically, cluster analyses with variables similar to those in the current investigation frequently identify profiles that have been labeled *Model* (i.e., high academics and popularity, low aggression), *Tough* (i.e., high aggression and popularity), and *Troubled* (i.e., high aggression, low academics and popularity) youth (e.g., Farmer et al., 2002; Farmer, Estell, Bishop, O'Neal, & Cairns, 2003; Farmer, Van Acker, Pearl, & Rodkin, 1999; Rodkin et al., 2000).

These behavioral configurations have been identified across various developmental periods including during the first grade (Estell, Cairns, Farmer, & Cairns, 2002; Estell, Farmer, Cairns, & Cairns, 2002), late elementary grades (Estell et al., 2003), and middle school years (Mahoney & Cairns, 1997). However, there is some variability as to whether Troubled and Tough youth are apparent for both girls and boys. Some studies have identified both Troubled and Tough youth among girls and boys (e.g., Cairns, Cairns, & Neckerman, 1989; Mahoney & Cairns, 1997). Other research has found Tough girls and boys and but only Troubled boys (e.g., Estell, Cairns, et al., 2002; Estell et al., 2003). Conversely, Troubled girls and boys were apparent but the Tough profile was only found for boys in other studies (e.g., Farmer et al., 2002, 2003). Thus, it was expected to identify Model, Troubled, and Tough youth in the current investigation but the possibility of these not emerging for both girls and boys was also anticipated.

Pattern-Centered Analyses

A person-oriented approach can also be used within longitudinal studies to determine patterns of or changes in development as well as factors associated with developmental outcomes (Bergman & Magnusson, 1997; Magnusson, 2003; Masten, 2001). There are two broad types of person-oriented analyses applicable to longitudinal studies (Cairns & Rodkin,

1998). First, individual growth curve analytic techniques (e.g., structural equation modeling or hierarchical linear modeling) that identify and compare the trajectories of homogenous subgroups of individuals may be undertaken. The second type of person-oriented longitudinal analysis involves identifying configurations at one, or several time points, and determining how these relate to outcomes of interest. The latter type has been termed *pattern-centered analyses*.

Pattern-centered analyses include several variations that can be employed in longitudinal research (Roeser & Peck, 2003). Furthermore, researchers have flexibility when conducting pattern-centered analyses. Specifically, these can involve determining individuals' profiles of functioning at one or across two or more time points. Identifying individuals' profiles of functioning at a starting point and determining the relationship to outcomes at a developmental end point constitutes a *point-to-point pattern-centered analysis*. Several researchers have recently recommended steps for completing pattern-centered analyses and these informed the analytic plan of the current study.

First, variables of interest are identified by drawing on theory and research (Cairns & Rodkin, 1998; Roeser & Peck, 2003). Next, homogenous subgroups of participants with similar configurations or profiles across the variables of interest are obtained. These profiles may be determined at the individual or contextual level. As previously mentioned, several procedures for determining individuals' status on a set of variables may be employed and can, for example, involve cluster analysis or the use of a priori defined cut-off scores (e.g., Farmer et al., 2004; Masten et al., 1999).

After homogenous subgroups have been obtained, Roeser and Peck (2003) suggest validation of the configurations. In order to validate the configurations, determining relations

between the clusters and theoretically related variables may be undertaken. Furthermore, these related variables should not be those used in the formation of subgroups of individuals and could include measures collected at various time points including concurrently, in the past, or at later periods. Additionally, this data would ideally be obtained from informants or sources that are different from those used to obtain the configurations.

Once the clusters have been validated, determining descriptive and other information relating to demographic variables (e.g., gender) across profiles may, when appropriate, be obtained. Furthermore, this information may also be useful in subsequent analyses as, for example, control variables. The final steps in pattern-centered analyses involve determining relations between configurations or profiles at the beginning of the study to individual variables and/or configurations of outcomes at the developmental end point.

Applicability to Resilience Research. The research design in a point-to-point pattern centered analysis seems especially useful in and congruent with resilience research in several regards. First, the typical research design in resilience studies is a form of point-to-point analysis. Specifically, resilience researchers frequently identify those with risk for future problems at an earlier developmental point and then examine their status at a future time point. Thus, resilience research is often a point-to-point analysis. The second reason that a point-to-point pattern-centered analysis also seems applicable for studies of resilience is that it is congruent with current developmental theory and resilience researchers' perspective on the nature of risk. As the reader may recall, developmental and resilience researchers maintain that multiple factors interact in correlated packages. Depending on the character of such configurations, individuals are at varying degrees of risk for poor outcomes. Clearly, the first steps in pattern-centered analyses (i.e., the identification and validation of behavioral

profiles across several variables at the initial time point) reflect this notion. As such, the steps

discussed above guided the design and analytic plan of the current investigation.

CHAPTER IV

METHODS

As part of an ongoing longitudinal study of the developmental pathways of rural

African American youth, this study involved a multi-method survey design. Teacher- and

student-reports were used to assess participants' aggression, academic competence, and

popularity in spring of 6th grade. Participants' grades at the end of 7th were obtained from

school records. Student-reports were also used to gather information regarding participants'

school activities, church activities, and school bonding during middle school (i.e., spring of

7th and 8th grades). Finally, peer assessments were administered during the spring of 9th

grade.

Participants

To clarify protective factors for aggression, the proposed dissertation extends an

ongoing longitudinal investigation of the developmental pathways of rural African American

youth. Additionally, these youth lived in two rural counties routinely identified as among the

nation's poorest in annual state reports. Although 40% of the population in these counties

was European American, the student population in the public schools was over 99% African

American. Further, while the household poverty level for European Americans in these two

counties was below 20%, the poverty-level for African American households was above

45%.

Each year, at least 80% of possible participants have been enrolled in the study and overall attrition since the beginning of the project has been 10%. The study consisted of two cohorts of youth (169 boys and 232 girls, 401 total) and began gathering data when participants were in the 5th & 6th grades. This data collection has continued and followed participants into high school (9th & 10th grades). For the current investigation, data obtained when participants were in the 6th through 9th grade were used.

Procedures

Data from multiple measures and sources (i.e., students, teachers, and peers) were gathered. Each of these measures is briefly described below. Measures were previously selected based on their adequacy for assessing the constructs of interest, psychometric properties, status as standards in the field, and use in similar longitudinal investigations. The dissertation advisor has used each of these measures in several other studies.

Participants' average score on each hypothesized moderator variable across the middle school years (i.e., 7th and 8th grade) were obtained. Furthermore, this was used as an index of their status during middle school on the possible protective factors. The average was employed in analyses for several reasons. First, given that the overarching aim of the longitudinal investigation was to identify protective factors across the middle school grades for the current sample use of an average seems logical. Second, past risk and resilience research across specific developmental periods has employed a similar approach (e.g., Cicchetti & Rogosch, 1997; Mahoney et al., 2003). Highly skewed variables were handled via recoding of outliers, transformations, and conversion to a dichotomous or categorical variable.

Measures

The following describes the measures for the proposed investigation. These are grouped according to the relevant aspect of the hypothesized model (i.e., configurations of early adjustment, measures for validating risk and low-risk conditions, outcomes, and proposed protective factors). In addition, the time points at which these variables were collected are summarized in Table 1.

Configurations of Early Adjustment. Configurations of early adjustment were obtained from teacher ratings on three indices collected completed during the spring of participants' 6th grade year (i.e., the end of elementary school). Specifically, teachers completed the Interpersonal Competence Scale-Teacher (ICS-T) for each participant in their class (Cairns, Leung, Gest, et al., 1995) (Appendix A). This measure is an 18-item questionnaire consisting of seven-point Likert scales. The ICS-T yields scores on several factors as well as a broad index of competence.

Three-week test-retest reliability coefficients on the ICS-T are moderately high (i.e., .80-.92), and median test-retest *r* across the factors are .81 for girls and .87 for boys. One-year coefficients are moderately strong (i.e., .40 - .50) (Cairns, Leung, Gest, et al., 1995). The ICS-T has convergent validity with direct observation, student records (i.e., grades, discipline reports), and peer nomination measures (Cairns & Cairns, 1994; Cairns, Leung, Buchanan, & Cairns, 1995; Leung, 1996; Rodkin et al., 2000). Additionally, the ICS-T has predictive validity over an eight-year period (Cairns & Cairns, 1994; Mahoney, 2000).

As previously alluded to, three measures corresponding to subscales from the ICS-T were used to obtain participants' configuration of early adjustment. These indices of adjustment included a measure of aggression (composed of "always argues," "gets in

trouble," and "always fights"), popularity (composed of "popular with boys," "popular with girls," "and "lots of friends"), and academic competence (composed of "good at math" and "good at spelling"). Furthermore, these configurations were then, in accordance with the previously described definitions, used to differentiate those with risk versus low-risk for future aggression and weapons carrying. These measures have been used in a similar fashion in previous person-oriented risk and resilience research (e.g., Mahoney & Cairns, 1997; Xie et al., 2003).

Measures for Validating Risk Conditions. In accordance with the steps outlined by Roeser & Peck (2003), the relationship of the risk conditions to other relevant variables were examined. Additionally, these measures were selected so as to represent several sources of information. Specifically, these included self-ratings and school record data.

Self-Ratings of Aggression, Academic Competence, and Popularity. The Interpersonal Competence Scale-Student (ICS-S) (Appendix A) is the same 18-item ICS-T measure completed by teachers and yields similar factors. In conjunction with the measure described next, the ICS-S aggression, popularity, and academic competence factors were used to validate the risk and low-risk designations. Furthermore, how these measures were used to validate the risk and low-risk designations is described in more detail in the following analytic plan.

School Achievement. Participants' end-of-year grades were obtained from school records. Grades were in the form of a percentage and students' average in five classes (English, math, science, social studies, and reading) during the 7th grade year were used.

Outcome in Spring of 9th Grade. As previously mentioned, the outcome of interest in the current investigation was aggressive behavior. Data for this construct were gathered from participants' peers and represent their same-grade classmates' aggregated perceptions.

Aggression. Peer behavioral assessments were obtained to determine classmates' perceptions of their peers. During the 9th grade, participants completed a measure in which they nominated up to three same grade peers on several items assessing different behavioral characteristics (Appendix B). These items were identical with or similar to peer assessments used by other investigators (e.g., Cantrell & Prinz, 1985; Coie, Dodge, & Coppotelli, 1982; Masten, Morison, & Pellegrini, 1985).

For each item, the total number of nominations participants received on each peer assessment item was divided by the total number of possible nominators (i.e., all participants in their school and grade). Because the denominator was the total number of participants in each school, the resulting proportions were small. In order to make mean differences clearer, these proportions were linearly transformed by multiplying them by 1000.

A factor analysis of these items has yielded a four-factor solution consisting of aggression (Cronbach's α = .90; consists of "disruptive," "starts fights," "gets in trouble," "starts rumors," and "bully"), prosocial (α = .81; consists of "cooperative," "good student," and "friendly"), social prominence (α = .83; consists of "leader," "athletic," "cool," and "popular"), and internalizing (α = .63; consists of "acts shy," "seeks help," "sad," and "picked on"). The aggression factor was comprised of participants' average across the above items and this was used in the current investigation as a measure of general overt aggression.

Hypothesized Protective Factors Across Middle School. As previously discussed, the proposed protective factors examined in this study included involvement in school and church activities as well as school bonding. It should be noted that school and church activities were grouped together below simply because these variables were derived from the same measures. However, these were used as distinct variables in analyses.

School and Church Activities. Participants' involvement in extracurricular activities at school and church were obtained via the self-report Extracurricular Involvement Survey (EIS) (Appendix C). On this instrument, participants indicated the activities they were involved with at school and in church (Cadwallader et al., 2002; Mahoney et al., 2003). Specifically, students were asked to circle all the activities they were involved in from the following: "music," "religious clubs," "academic clubs," "hobby clubs," "vocational clubs," and "sports." Participants were then asked to write the names of the specific activities, for example "choir" as a specific type of music activity, in which they were involved. Finally, participants were asked to check where they participated in each of these activities: "school" and/or "church."

While drawing from previous research (Mahoney & Cairns, 1997), participants' responses were reviewed and a list of specific activities that were deemed valid was developed. Following the definition of student investment of Jordan and Nettles (2000), responses were deemed to be an *extracurricular activity* if it was one that participants' engaged in and directed time towards. In addition, school activities that were likely to facilitate the development of positive skills and reduce aggressive behavior were examined. Thus, school activities were limited to music, academic, vocational, and hobby clubs. Furthermore, to be considered an extracurricular activity that reflected engagement at church,

it was decided that the activity should extend beyond attendance at Sunday services. For example, singing in the church choir and attending Sunday school were categorized as an activity in church. Participants' responses were coded by summing the number of valid activities at school and church. The average number of *school activities* and *church activities* participants reported being involved in the 7th and 8th grades was then obtained and used in subsequent analyses.

Responses reflecting attendance at or belonging to a church were excluded because the design of the measure did not direct participants to indicate whether they attended a church or not. Specifically, the measure prompted participants to report the "religious clubs" that they participated in (see Appendix C). Consequently, it is likely that participants did not consistently report their attendance at or belonging to a church. This would prohibit the clear measurement and interpretation of what would be represented by participants' responses.

The nature of the EIS also prevented the differentiation of organized from unorganized activities that students reported engaging in outside of school. A rapidly increasing body of research indicates that this is essential. Specifically, it has been shown that involvement in structured activities outside of school is typically related to better outcomes but participation in unstructured activities is associated with problematic adjustment (Mahoney, Schweder, & Stattin, 2002). For example, Mahoney and Stattin (2000) found that involvement in unstructured after-school activities was associated with more aggressive and antisocial behaviors for both girls and boys, though significantly more so for boys. In addition, a recent review of the literature concluded that the provision of clear rules and boundaries (i.e., *appropriate structure*) is a key feature of community programs and activities that promote positive development (Eccles & Gootman, 2002).

Two types of school activities were also not included in this investigation. First, involvement in student government was not examined because few respondents indicated that they were involved in this activity. Moreover, the nature of this activity not only limits the number of students that can participate but it is also highly selective. Consequently, this type of school activity would have little statistical power and would not be very informative for prevention and intervention efforts which was an overarching purpose of this investigation. Second, involvement in athletic activities was also excluded from the measure of school activities. On the one hand, research consistently indicates that participation in athletics is related to better academic outcomes (Vandell, Pierce, & Dadisman, 2005) and, at times, it has even demonstrated a protective effect (e.g., Eccles & Barber, 1999).

However, a few studies have found that athletics are related to lower achievement (e.g., Darling, Caldwell, & Smith, 2005; Schreiber & Chambers, 2002). The relationship of school athletics with other developmental outcomes is more consistently unfavorable. Specifically, sports participation is related to higher alcohol use (Barber, Eccles, & Stone, 2001; Darling et al., 2005; Eccles & Barber, 1999). In addition, Bartko and Eccles (2003) found that adolescent's who are largely involved in sports activities have some of the highest rates of delinquent and antisocial behavior (e.g., aggression against others, destruction of property, theft, alcohol use). Finally, laboratory experiments have shown that high school athletes that are involved in contact sports respond more aggressively to provocation (e.g., Huang, Cherek, & Lane, 1999). This is consistent with a learning theory of aggression and suggests that at least some athletic activities may actually socialize aggression.

School Bonding. School bonding or emotional engagement can be operationalized in a variety of ways. For the current investigation, school bonding was

defined as students' general sense of satisfaction and belongingness within the school environment. Consistent with this, Epstein and McPartland (1976) developed the 27-item *Quality of School Life* (QSL) measure (Appendix D) to assess students' satisfaction with school, commitment to school work, and perceptions of their relationships with teachers. Thus, a higher satisfaction with school provided a gauge of students' emotional school engagement and positive experiences in or affect towards their school and teachers (Epstein & McPartland, 1976). To provide an overall measure of school bonding, this study obtained the average across all items that were dichotomously scored in accordance with the guidelines of Epstein and McPartland (1976). Finally, the average of these overall scores across the 7th and 8th grades was used as the index of school bonding during middle school.

CHAPTER V

ANALYTIC PLAN

Boys and girls often demonstrate unique configurations when person-oriented

analyses are completed to identify correlated packages of risk and support. As a result, these

analyses are typically completed separately for boys and girls. In addition, there were

substantially more girls than boys in the current sample. Thus, the configurations of early

adjustment and subsequent analyses were obtained or completed separately for boys and girls

as well. Regression analyses were undertaken to determine if the proposed protective factors

buffer against aggression.

Identifying Configurations of Early Adjustment

In order to address the first hypothesis, teacher ratings of aggression, academics, and

popularity factors on the ICS-T was submitted to cluster analytic procedures. These data

were collected during the spring of participants' 6th grade year. As hypothesized, results were

expected to identify homogenous subgroups of participants exhibiting profiles indicative risk

and low-risk in accordance with the previous definitions. Toward that end, teachers' ratings

were first standardized by sex. Next, configurations were obtained separately for boys and

girls via Ward's (1963) clustering algorithm. With this method, the similarity between

participants' profiles was measured by squared Euclidean differences. The number of

configurations to retain was determined by examining a scree plot of distance coefficients as

a function of the number of configurations at each agglomerative step (c.f. Aldenderfer & Blashfield, 1984). Configurations or profiles were deemed to constitute high risk when multiple risks were apparent. Profiles of no more than one risk or strength (i.e., average on most factors) were assigned to the moderate risk condition. The low risk group consisted of multiple (i.e., two or more) strength profiles.

Validation of Risk Conditions

To validate the early adjustment patterns constituting the antecedent risk conditions (i.e., the second hypothesis), the relationship of risk to theoretically related constructs was examined. Specifically, an Analysis of Variance (ANOVA) was undertaken to determine if there were significant differences between those in low, moderate, and high risk conditions on several measures. These included self-report measures of aggression, popularity, and academics on the Interpersonal Competence Scale-Student (ICS-S). Additionally, school achievement in 7th grade was used. It was anticipated that those in the in the risk condition would have higher self-reported aggression (ICS-S) as high aggression is a central condition of the operational definition of risk. Likewise, it was expected that those in the risk group would have lower self-ratings of popularity and academics. Given that at-risk youth tend to be less academically successful, it was also expected that those in the high and moderate risk conditions would have significantly lower achievement in 7th grade.

Determining Function of Proposed Protective Factors

Regression analyses were used to address the third hypothesis. Specifically, this analytic approach was used to determine whether the proposed protective factors actually buffered or protected against the relationship between risk conditions in the spring of 6th grade and aggression in the spring of 9th grade. In order to identify and differentiate the type

of protective effect (i.e., main versus moderating), interaction terms were included. These were included to capture the interaction of the proposed protective factors and the antecedent risk conditions. Specifically, dichotomous variables were used to designate whether participants were in the moderate or high risk conditions. Participants were be assigned a 1 on the *moderate risk* and *high risk* variable if they were in the moderate or high risk condition, respectively. Those in the low risk condition were coded a 0 on both of these variables. Thus, the low risk condition was the reference category.

If an interaction term was significant, then it would be interpreted in accordance with the previously discussed definitions of protective-stabilizing, protective-enhancing, and protective but reactive effects. If a variable had a significant main effect and the interaction terms were not significant, then it would be considered to serve a protective effect (i.e., beneficial for all participants while the antecedent risk is accounted for). Finally, if a specific factor related to worse or lower status on an outcome for all (i.e., a significant simple main effect) and/or those in a risk condition (i.e., a significant interaction effect), then it would be deemed to function as a risk factor.

Following procedures in Cicchetti and Rogosch (1997), the regression analyses for each variable consisting of the variable and the interaction of the variable with risk condition was first completed on each moderator individually. This provided an individual test of each factor. Subsequently, each variable that demonstrated a protective effect was to be entered into a final regression analysis that included all of the previously significant factors. This final regression analysis was undertaken to determine the collective contribution of these variables to the outcome of interest.

In addition, these analyses were undertaken with block regression models. First, the dummy coded variables representing the risk conditions were entered as predictors in the initial block. The second block included the proposed protective factor or factors when examining their collective contribution. This approach was prudent in order to address the third hypothesis. Specifically, this tested whether the proposed protective factors uniquely contributed to the prediction of the outcomes of interest while accounting for the risk conditions. The final block consisted of variables reflecting the interaction between the risk conditions and the proposed protective factors. This third block provided a test of whether the proposed protective factors appeared to serve protective-enhancing, protective-stabilizing, or protective but reactive roles.

CHAPTER VI

RESULTS

The results of this investigation are presented in the following sections. First, some of the preliminary data decisions that were made due to the extremely skewed and kurtotic distribution of the peer-assessed aggression measure are discussed. Next, the results of analyses addressing the first hypothesis are covered. This includes multiple and logistic regression analyses examining the nature of risks and strengths for subsequent aggression and cluster analyses to identify the early adjustment configurations and risk conditions. The third section presents results of analyses undertaken to further validate the early adjustment configurations. The following section presents results determining the function of the proposed protective factors. Finally, analyses to test for possible selection effects are summarized.

Preliminary Data Decisions

The distribution of peer-assessed aggression had the significant positive skewness and kurtosis that is common with peer nomination measures (e.g., Goodman, Stormshak, & Dishion, 2001; Huesmann et al., 1994). Non-normality is often not an issue in research employing these procedures because peer nomination data has typically been used to identify and classify youth as *aggressive*. Therefore, peer nomination data is usually dichotomized (Solberg & Olweus, 2003). The categorization of individuals with and the development of

peer assessment data partly derived from the difficulties with inferring intent by a single observer. Consequently, peer nomination procedures were designed for classifying individuals' tendencies to act aggressively according to multiple informants and observations of prototypical behaviors (Huesmann et al., 1994). However, there is more information in continuous variables. Thus, several transformations were undertaken that have been used with peer nomination data and are recommended for substantial to severe positive skewness (Goodman et al., 2001; Tabachnick & Fidell, 2001).

Specifically, a constant of 1 was added to all cases because the lowest possible value was 0. Next, the logarithmic and inverse transformations were obtained. The transformed variables produced other problems and/or reduced but did not completely remedy the original violations of normality (i.e., positive skewness). In particular, the inverse transformation resulted in significant negative kurtosis and the logarithmic transformation did not ameliorate the significant positive skewness. Significant skewness often does not adversely alter results in large samples and with more than 100 cases the underestimation of variance due to positive kurtosis is also typically negated (Tabachnick & Fidell, 2001). Thus, it was decided to retain the original form of the peer-assessed aggression factor in subsequent multiple regression analyses. However, peer-assessed aggression was also dichotomized and the robustness of results was verified via logistic regression analyses with this more frequently utilized form of peer nomination data. It should be noted that standardized regression coefficients (i.e., β) are reported for results from block regression analyses. Unstandardized regression coefficients (i.e., B) are reported for the logistic regression analyses because standardized regression coefficients were not available from the software (i.e., SPSS) used for these analyses.

Several criteria have been used with peer assessment data to identify aggressive youth. For example, 6 girls and boys in each grade with the highest proportion of nominations have been deemed aggressive (Perry, Willard, & Perry, 1990). Others have considered those at or above the 85th percentile on the nomination "starts fights" as aggressive (Kupersmidt & Coie, 1990). The use of cut-off scores, such as greater than or equal to 1 or .75 *SD* above the mean, are most commonly used in research on the correlates, predictors, and subtypes of aggression (Solberg & Olweus, 2003). Consequently, a cut-off of greater than or equal to 1 *SD* above the mean on peer-assessed aggression was adopted for the current investigation.

Identification of Early Adjustment Configurations and Risk Conditions (Hypothesis 1)

As previously discussed, determining the role of a variable as a risk or protective factor is a data-driven decision. Consequently, the ICS-T factors were regressed on peer-assessed aggression to determine whether and how these factors uniquely related to and predicted subsequent aggression. Second, early adjustment configurations were identified. In accordance with the first hypothesis, these profiles were then categorized into the low, moderate, and high risk conditions.

Nature of risk and strengths for peer-assessed aggression. The accuracy of the data and detection of univariate outliers was assessed by inspection of minimum and maximum values, means and standard deviations, skewness and kurtosis statistics, and residual statistics (Table 2). Six cases had a peer aggression factor score and standardized residual greater than 3.29 indicating that these were significant outliers at $\alpha = .001$. The peer aggression factor score for these cases ranged from 47.22 to 108.53 and these were recoded to the next nearest value (40.69). The recoding also improved the positive skewness as it (i.e., skewness divided

by standard error) was reduced from 36.00 to 20.12. The recoding improved the positive

kurtosis as well and it (i.e., kurtosis divided by standard error) was reduced from 112.16 to

25.65. However, both were still significantly positive. Three cases were suspected

multivariate outliers because these had a Mahalanobis distance exceeding the χ^2 critical value

of 24.32 ($\alpha = .001$; 7 df). Regression analyses were completed with and without the suspect

cases. Results were not affected by their presence or absence and, therefore, these cases were

retained in the final analysis.

An examination of scatterplots depicting the relationship between each ICS-T factor

and peer-assessed aggression was also undertaken to screen for violations of linearity and

homoscedasticity. For each ICS-T factor, cases were more closely grouped near lower values

of the peer-assessed aggression confirming the skewness of the aggression measure. There

was comparable variability in peer-assessed aggression across low and high values of the

ICS-T factors suggesting that the assumption of homogeneity of variance was met. Finally,

there was no suggestion of non-linearity in the scatterplots.

The correlation matrix is available in Table 2 and results are summarized in Table 3.

The first block containing the dummy variable representing gender (1 = boys, 0 = girls) did

not predict a significant amount of variance ($R^2 < .001$) in peer-assessed aggression, $F(1,$

$384) = .09$, $p = .76$. The second block included the ICS-T factors and it accounted for a

significant 6.7% (Adjusted $R^2 = 5.7\%$) of the variance in peer-assessed aggression, $\Delta F(3,$

$381) = 9.02$, $p < .001$. Teacher-rated aggression ($\beta = .21$, $p < .001$) and popularity ($\beta = .14$, p

$= .007$) positively predicted peer-assessed aggression. Teacher-rated academics was a

significant inverse predictor of subsequent aggression ($\beta = -.13$, $p < .001$). The final block

included the interaction of gender with each ICS-T factor. Prior to creating the interaction

terms, the ICS-T factors were centered in order to reduce the likelihood of multicollinearity (Tabachnick & Fidell, 2001). The final block did not account for any significant additional variance ($\Delta R^2 = .001$) in peer-assessed aggression, $\Delta F(3, 378) = .13$, $p = .94$.

As previously discussed, participants' were classified as *aggressive* on the peer nomination factor due to the extreme positive skewness of this data. The above analyses were repeated via logistic regression with this more frequent form of peer assessment data. After classifying participants as aggressive or not aggressive, all expected frequencies were greater than one and none were less than five across the discrete variable gender. Thus, the logistic regression analysis had adequate power (Tabachnick & Fidell, 2001). The assumption of a linear relationship between continuous predictors and the logit transformation of the dependent variable (i.e., linearity of the logit) was assessed via the Box-Tidwell approach. Specifically, the interaction of each continuous predictor and its natural logarithm was added to the model. None of the interaction terms were significant and suggested that the assumption of linearity of the logit was met. The standard errors for parameter estimates and correlations between predictors were not exceptionally high. In addition, continuous variables were centered prior to forming interaction terms. As a result, problems of multicollinearity were unlikely. Finally, all standardized residuals were less than 3.29 ($\alpha = .001$) indicating that none of the cases were significant outliers in and were poorly predicted by the solution. The results from the logistic regression analysis are summarized in Table 4.

According to Cox and Snell's R^2 (R^2_{CS}) and Nagelkerke's R^2 (R^2_N), the first block containing gender did not account for any variance ($R^2_{CS} < .001$; $R^2_N < .001$) in peer-assessed aggression, $\chi^2(1) = .08$, $p = .78$. The addition of the ICS-T factors to the model resulted in a substantial improvement in explanatory power ($R^2_{CS} = .05$; $R^2_N = .11$), $\chi^2(3) = 20.57$, $p < .001$.

The Hosmer-Lemeshow statistic also indicated the model was a good fit as it was non-significant, $\chi^2(8) = 4.14$, $p = .84$.

Results for the individual predictors were similar to the multiple regression analysis. Specifically, teacher-rated aggression ($B = .37$, $SE = .13$, $p = .003$, Odds ratio = 1.44) and popularity ($B = .48$, $SE = .17$, $p = .004$, Odds ratio = 1.61) were positive predictors of being aggressive in the 9th grade. Teacher-rated academics was an inverse predictor ($B = -.28$, $SE = .12$, $p = .022$, Odds ratio = .76). The odds ratios indicate that while accounting for all other variables in the model, a one unit increase in teacher-rated aggression predicts a 44.4% increase in the probability of being aggressive. Likewise, a one unit increase in popularity increases the likelihood of being classified aggressive by 61.4%. Finally, a one unit increase in academic competence decreases the chance of being identified as aggressive by 24%. The final block included the interaction of gender with each centered ICS-T factor. The addition of these variables did not explain any additional variance ($R^2_{CS} = .06$; $R^2_N = .12$), $\chi^2(3) = 1.25$, $p = .74$.

The results from multiple and logistic regression analyses on peer-assessed aggression indicated that higher aggression and popularity predicted higher subsequent aggression while lower aggression and popularity predicted lower aggression. In contrast, higher academic competence predicted lower peer-assessed aggression in the 9th grade and lower academic competence predicted higher aggression. Gender did not interact with the ICS-T factors suggesting that teacher-rated aggression, popularity, and academics predicted subsequent aggression similarly for girls and boys.

Identification of configurations. The number of configurations to retain was partly determined by examining a scree plot of distance coefficients as a function of the number of

configurations at each agglomerative step (c.f. Aldenderfer & Blashfield, 1984). Other factors included in determining the number of clusters included expectations, distinctness and relevance, statistical indices, and issues of power. Specifically, the expected profiles based on previous research, the uniqueness and relevance of additional clusters, and the sample size of each cluster were taken into consideration when obtaining the final set of clusters.

The clusters are presented in Tables 5 and 6. In accordance with previously delineated criteria, these configurations were combined into the risk conditions below. Six early adjustment configurations were identified for girls and 5 for boys.

Girls low risk configurations: Three early adjustment configurations for girls met the previously outlined criteria (i.e., multiple strengths) for being considered a low risk profile and these included:

Model girls: Girls in this configuration had multiple strengths. Specifically, Model girls were above average on academics and below average on aggression. Above average popularity also characterized these girls and this was a risk for subsequent aggression.

Aggressive girls: Girls in the second low risk configuration also had two strengths. Specifically, girls with this profile had above average academics and below average popularity. However, these girls also had a single risk and that was above average aggression.

Disengaged girls: This profile was also at low risk for subsequent aggression because they were below average on aggression and popularity. However, these girls had one risk, below average academics.

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Girls high risk configurations: Three early adjustment configurations for girls met the previously outlined criteria (i.e., multiple risks) for being considered a high risk profile and these included:

Social girls: The two risks apparent for girls in the first high risk configuration was above average popularity and below average academics. These girls were also below average on aggression which represented a strength.

Tough girls: These girls' risks included above average aggression and popularity. However, they also had a source of strength and that was above average academics.

Troubled girls: The third and final high risk configuration was typified by above average aggression and below average academics and popularity.

There were significant differences by girls' early adjustment configurations on teacher-reported aggression, $F(5, 222) = 140.34$, $p < .001$, partial $\eta^2 = .76$. Tukey's HSD post hoc analyses indicated that Troubled girls were significantly more aggressive than girls in all other configurations. In addition, Tough and Aggressive-Engaged girls were more aggressive than girls in Model, Disengaged, and Social configurations. There were significant differences across the profiles on teacher-rated academics, $F(5, 222) = 42.05$, $p < .001$, partial $\eta^2 = .49$. Pairwise comparisons revealed that Model, Aggressive, and Tough girls were rated as being significantly more academically competent than girls in the other configurations. Finally, there were also significant differences on teacher-rated popularity $F(5, 222) = 139.16$, $p < .001$, partial $\eta^2 = .76$. Post hoc tests indicated that Model, Social, and Tough girls were more popular than girls in all other profiles.

Boys low risk configurations. A single early adjustment configuration emerged for boys that met the operational definition of a low risk profile and it was:

Model boys: Boys in this configuration had multiple strengths. Specifically, Model boys were above average on academics and below average on aggression. These boys had a single risk and that was above average popularity.

Boys moderate risk configurations. Contrary to girls, two moderate risk configurations were evident for boys and these were:

Average boys: Boys in this configuration had average aggression, academics, and popularity.

Disengaged boys: Boys with this profile had one strength, below average aggression, and one risk, below average academics.

Boys high risk configurations. Two early adjustment profiles were deemed to constitute high risk configurations and these were:

Tough boys: This profile consisted of boys with multiple risks in the form of above average aggression and popularity and below average academics.

Troubled boys: The second high risk configuration was also characterized by multiple risks as they had above average aggression and below average academics. However, these boys had a single strength, below average popularity.

There were significant differences by boys' early adjustment configurations on teacher-reported aggression, $F(4, 186) = 132.57$, $p < .001$, partial $\eta^2 = .74$. Tukey's HSD post hoc analyses indicated that Troubled boys were significantly more aggressive than boys in all other configurations. In addition, Tough were more aggressive than boys in Model, Average, and Disengaged configurations and Average boys were also more aggressive than Model and

Disengaged youth. There were significant differences across the profiles on teacher-rated academics, $F(4, 186) = 53.57$, $p < .001$, partial $\eta^2 = .54$. Pairwise comparisons revealed that Model boys were more academically competent than boys in all other configurations. Disengaged, Tough, and Troubled boys also had lower academics than Average boys. There were also significant differences across teacher-rated popularity $F(4, 186) = 40.18$, $p < .001$. Post hoc tests determined that Model and Tough boys were more popular than boys in all other profiles. In addition, Troubled boys had lower popularity than all other boys.

Although there were some similarities in the clusters across gender, the labels are used only for descriptive purposes. While the *Model* and *Tough* labels are, for example, used to describe early adjustment configurations for both girls and boys, these should not be viewed as direct parallels. The term *Tough* has been used in previous research to describe youth who are both aggressive and popular (e.g., Farmer et al., 2002, 2003). However, girls and boys in this early adjustment configuration from the current sample are distinct in terms of their academic competence. Specifically, Tough girls had above average academics but Tough boys had below average academics. Nonetheless, these labels provide a helpful heuristic for understanding some key differences between the profiles capturing participants' early adjustment within the same gender.

Differences on Related Variables by Early Adjustment Configurations (Hypothesis 2)

Previous results indicated that there were distinct early adjustment configurations and that there were significant differences on the measures used to derive the profiles. Thus, there was some evidence that the early adjustment configurations had discriminant validity. However, similar tests on related data obtained from other sources additionally provide a measure of cross-informant validity (Roeser & Peck, 2003). To further address the second

hypothesis, a series of ANOVAs were undertaken that tested for significant differences between the early adjustment configurations on self-report measures of the same constructs employed in the cluster analyses. In addition, end-of-year school grades in the 7th grade were also used to validate the early adjustment configurations. As described in more detail later, incomplete self-report data was the major source of missing data. In addition, the sample size within several of the early adjustment configurations was fairly small. As a result, pairwise deletion was used in order to maximize the number of cases and power. All variables in these analyses were standardized within gender.

As is apparent in Table 5, there were significant differences by early adjustment configurations on girls' self-reported aggression in the spring of their 6th grade year, $F(5, 201) = 5.02$, $p < .001$, partial $\eta^2 = .11$. Tukey's post hoc analyses indicated that Troubled and Tough girls rated themselves as significantly more aggressive than Model girls. Girls also had significant differences by early adjustment configurations on self-reported popularity, $F(5, 189) = 4.54$, $p = .001$, partial $\eta^2 = .11$. Pairwise comparisons revealed that Model and Tough girls rated themselves as more popular than Disengaged girls. There was not a significant difference by early adjustment configurations on self-reported academics, $F(5, 203) = 1.73$, $p = .13$. However, there were differences between the early adjustment configurations on 7th grade school achievement, $F(5, 195) = 9.81$, $p < .001$, partial $\eta^2 = .20$. Specifically, Model girls had higher end-of-year grade averages than Disengaged, Social, and Troubled girls. In addition, Tough girls had significantly higher grades than Disengaged and Troubled girls.

As is apparent in Table 6, there were significant differences by early adjustment configurations on boys' self-reported aggression, $F(4, 139) = 3.18$, $p = .02$, partial $\eta^2 = .08$.

Post hoc analyses indicated that Tough boys rated themselves as significantly more aggressive than Model boys. There was not a significant difference by early adjustment configurations on boys' self-reported popularity, $F(4, 129) = 1.47$, $p = .22$. Omnibus results indicated that there were significant differences between early adjustment configurations on self-reported academics, $F(4, 141) = 3.53$, $p = .009$, partial $\eta^2 = .09$. However, the pairwise comparisons only approached significance. Specifically, Tough boys indicated they had less academic competence than Model ($p = .079$) and Average boys ($p = .061$). In addition, Disengaged boys rated themselves lower on academics than Model ($p = .071$) and Average youth ($p = .055$). There were also significant differences in 7th grade school achievement across the early adjustment configurations, $F(4, 133) = 9.95$, $p < .001$, partial $\eta^2 = .23$. Post hoc tests revealed that Model boys had significantly higher end-of-year grade average than Average, Disengaged, Tough, and Troubled boys.

Function of Proposed Protective Factors (Hypothesis 3)

After utilizing all participants with the appropriate teacher-report measures to obtain and validate the early adjustment configurations, patterns of missing data on other key variables (i.e., moderators and outcomes) were identified. Decisions regarding the handling of missing data were made and then analyses to test the function of the proposed protective factors were undertaken. In accordance with the analytic plan and procedures employed by Cicchetti and Rogosch (1997), each proposed protective factor was independently regressed on peer-assessed aggression. Specifically, a series of individual block regression analyses were completed to determine the function the proposed protective factors served when accounting for the early adjustment risk conditions.

Within the first block, the variables representing the early adjustment configurations were entered into the model at the first step. Each proposed protective factor comprised the second block and was entered next. The final block of variables contained the interaction between the early adjustment risk conditions and the proposed protective factors. The first block was redundant across the series of individual block regression analyses. Thus, results from the initial block will be discussed first and only once. These results are followed by those from the addition of the second and third blocks which tested the function of each proposed protective factor. However, the reader should be aware that the findings from the first block were replicated for and are reported in the tables summarizing results from the independent regression analyses. Finally, the collective contribution of the proposed protective factors will, when needed, be presented.

Missing data. Overall, self-report data was the major source of missing data on the outcome measure. In the spring of their 6th grade year, 228 participating girls had teacher-report data available (i.e., ICS-T) to derive the early adjustment configurations. Of these 228 girls, 27 (11.84%) were missing self-report data on the proposed protective factors across the 7th and 8th grades. In terms of the outcome measure, 2 additional girls (0.88%) were missing peer assessment data. Thus, the final sample size for girls was 199 (87.28%) and a total of 29 girls (12.72%) were excluded from subsequent analyses on peer-assessed aggression.

There were 191 participating boys who had teacher-report data available in the spring of their 6th grade year and for whom their early adjustment configuration could be identified. Fifty one of these boys were missing self-report data on the proposed protective factors across the 7th and 8th grades (26.70%). In terms of the outcome measure, 4 other boys (2.09%) were missing data on peer-assessed aggression. This resulted in a final sample size

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for boys of 136 (71.20%). Thus, 55 (28.80%) boys were not included in analyses on peer-assessed aggression.

Function of Proposed Protective Factors for Peer-Assessed Aggression. The correlation matrix and descriptive statistics of the variables used in the multiple regression analyses for girls are available in Table 7. For girls, five cases had a peer aggression factor score greater than 3 *SD*s above the mean and these ranged from 36.11 to 75.00. Across an initial run of each independent regression model, these cases also generally had high standardized and studentized deleted residuals. Thus, these cases were recoded to the next nearest value of 27.78. The recoding also improved the positive skewness in peer-assessed aggression as it (i.e., skewness divided by standard error) was reduced from 20.12 to 9.77. The recoding improved the positive kurtosis as well and it (i.e., kurtosis divided by standard error) was reduced from 47.72 to 5.69. However, both were still significantly positive. Across the initial run of these independent regression analyses, there was one case in the analysis examining the function of school activities that was a suspected multivariate outlier. Specifically, this case had a Mahalanobis distance of 16.43 which exceeded the χ^2 critical value of 16.27 (α = .001; 3 *df*). The analysis was completed with and without this suspect case. Results were not affected by the presence or absence of this case. Therefore, it was retained in the final analysis to maximize sample size.

An examination of scatterplots depicting the relationship between each proposed protective factor and peer-assessed aggression (with univariate outliers recoded) was undertaken to screen for violations of linearity and homoscedasticity. Cases were more closely grouped near lower values of the peer-assessed aggression verifying that the positive skewness of the aggression measure was still apparent after the outliers had been recoded. In

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general, there was comparable variability in peer-assessed aggression across all values of the proposed factors suggesting that the assumption of homogeneity of variance was met. However, there appeared to be some restriction in variance at the high values of involvement in school activities. Finally, there was no suggestion of non-linearity in the scatterplots.

Results from the multiple regression analyses for girls are summarized in Table 8. For girls, the first block included the variable representing being in a high risk early adjustment configuration and it accounted for a significant 2.9% ($R^2 = .029$; Adjusted $R^2 = .024$) of the variance in peer-assessed aggression, $F(1, 197) = 5.81$, $p = .017$. Specifically, having a high risk configuration predicted significantly higher peer-assessed aggression ($\beta = .17$, $p = .017$).

The first model in the series of individual block regression analyses examined the role of school activities as a potential buffer against aggression. Thus, girls' self-reported involvement in school activities across middle school was added to the model as the second block. The addition of school activities to the model did not predict a significant amount of unique variance in peer-assessed aggression, $\Delta F(1, 196) = 2.46$, $p = .12$. The final block was entered next and it contained the interaction of school activities and being in a high risk configuration. This block also did not significantly contribute to the prediction of peer-assessed aggression, $\Delta F(1, 195) = .07$, $p = .79$.

The next model in the series of individual block regression analyses examined the independent function school bonding served. Girls' self-reported school bonding across middle school was entered into the model at the second step and it inversely predicted an additional 3.3% ($R^2 = .062$; Adjusted $R^2 = .052$) of the variance in peer-assessed aggression, $\Delta F(1, 196) = 6.89$, $p = .009$. Specifically, results indicated that higher school bonding predicted lower aggression and lower school bonding predicted higher aggression ($\beta = -.18$, p

= .009). The final block of interaction terms did not predict an additional portion of the variance in peer-assessed aggression, $\Delta F(1, 195) = .01$, $p = .92$.

The final model in the series of block regression analyses with the outcome peer-assessed aggression examined the role of church activities. The second block containing involvement in church activities did not explain any additional variance in peer-assessed aggression, $\Delta F(1, 196) = .55$, $p = .46$. The final block with the interaction term also did not account for any significant variance, $\Delta F(1, 195) = .007$, $p = .93$.

The correlation matrix and descriptive statistics of the variables used in the multiple regression analyses for boys are available in Table 9. For boys, three cases had a peer aggression factor score greater than 3 SDs above the mean and the score for these cases ranged from 47.22 to 108.33. An initial run of each independent regression model demonstrated that these cases generally had high standardized and studentized deleted residuals. Thus, these cases were recoded to the next nearest value of 38.89. The recoding also improved the positive skewness in peer-assessed aggression as it (i.e., skewness divided by standard error) was reduced from 21.64 to 11.50. The recoding improved the positive kurtosis as well and it (i.e., kurtosis divided by standard error) was reduced from 61.69 to 12.48, but skewness and kurtosis were still significantly positive. Across the initial run of these independent regression analyses, there was only one case in these analyses that was a suspected multivariate outlier when examining the function church activities. Specifically, this case had a Mahalanobis distance of 27.59 which exceeded the χ^2 critical value of 20.52 ($\alpha = .001$; 5 df). The analysis was completed with and without this suspect case. Results were not affected by the presence or absence of this case and, therefore, it was retained in the final analysis.

An examination of scatterplots depicting the relationship between each proposed protective factor and peer-assessed aggression (with univariate outliers recoded) was also undertaken to screen for violations of linearity and homoscedasticity. Cases were more closely grouped near lower values of the peer-assessed aggression verifying that the positive skewness of the aggression measure was still apparent after outliers had been recoded. Typically, there was comparable variability in peer-assessed aggression across all values of the proposed factors. However, there appeared to be some restriction in variance at the high values of involvement in school and church activities.

Results from the multiple regression analyses for boys are present in Table 10. For boys, the block of variables representing high and moderate risk configurations predicted a significant amount of the variance ($R^2 = .063$; Adjusted $R^2 = .049$) in peer-assessed aggression, $F(2, 133) = 4.48$, $p = .013$. Only membership in a high risk configuration was a significant and unique predictor of peer-assessed aggression ($\beta = .29$, $p = .004$). Specifically, results indicated that being in a high risk early adjustment configuration predicted significantly higher aggression in 9th grade.

In the first independent regression analysis, the second block of involvement in school activities predicted a significant 3.1% ($R^2 = .094$; Adjusted $R^2 = .074$) of additional variance in aggression, $\Delta F(1, 132) = 4.52$, $p = .035$. Specifically, involvement in school activities uniquely and inversely predicted aggression in 9th grade ($\beta = -.18$, $p = .035$). Thus, higher involvement in school activities predicted lower aggression. Conversely, lower involvement predicted higher aggression. The final block of variables included the interactions between the high or moderate risk configurations and school activities. This

block did not account for any additional variance in peer-assessed aggression, $\Delta F(2, 130) =$ 1.48, $p = .23$.

For boys' next independent regression, the second block including school bonding did not predict a significant amount of unique variance in aggression, $\Delta F(1, 132) = .04$, $p = .84$. The final block of variables containing the interaction terms also did not account for any additional variance in peer-assessed aggression, $\Delta F(2, 130) = 1.64$, $p = .20$.

In the final independent regression analysis, the second block of involvement in church activities did not explain any additional variance in peer-assessed aggression, $\Delta F(1, 132) = .38$, $p = .54$. The final block of interaction terms also did not predict any additional variance as well, $\Delta F(2, 130) = .04$, $p = .96$.

As previously discussed, participants' were classified as *aggressive* on the peer nomination factor due to the extreme positive skewness of this data. The above analyses were repeated via logistic regression with the more frequent form of peer assessment data to test the robustness of results. A criterion of greater than or equal to 1 *SD* above the mean on peer-assessed aggression had been adopted as the cut-off to identify aggressive youth. However, the use of this criterion with combinations of discrete variables in these analyses resulted in 30% of cells for girls and 50% of cells for boys having an expected count less than 5. Thus, the logistic regression analyses would not have had adequate power (Tabachnick & Fidell, 2001).

In order to improve the power of the analyses, the observed and expected counts for .75 and .5 *SD* were examined. A criterion of greater than or equal to .5 *SD* above the mean was necessary for girls and boys to ensure that these logistic regression analyses would have adequate power. Specifically, a cut-off score of .5 *SD* above the mean resulted in all expected

frequencies of greater than one and no more than 20% less than five. Similar issues have led previous studies to also employ a cut-off of .5 *SD* from the mean in risk and aggression research (e.g., Farmer et al., 2004; Schwartz, 2000).

The assumption of a linear relationship between continuous predictors and the logit transformation of *aggressive* (i.e., linearity of the logit) was assessed via the Box-Tidwell approach. Specifically, the interaction of each continuous predictor and its natural logarithm was added to all of the models presented below. None of the interaction terms were significant and suggested that the assumption of linearity of the logit was met. The standard errors for parameter estimates were not exceptionally high and continuous variables were centered prior to forming interaction terms. As a result, problems of multicollinearity were unlikely. Finally, all standardized residuals were less than 3.29 ($\alpha = .001$) indicating that none of the cases were significant outliers in and were poorly predicted by the solution. The results are presented in Table 11.

For girls, the first block and the variable representing membership in a high risk configuration accounted for small amount of variance in being aggressive ($R^2_{CS} = .02$; $R^2_N = .03$). The block had a marginally significant improvement in fit over the constant-only model, $\chi^2(1) = 3.72$, $p = .054$, and the *high risk* variable was a marginally significant predictor of being aggressive ($B = .70$, $p = .057$).

In the first independent logistic regression analysis, the addition of involvement in school activities to the model and the second block did not improve explanatory power ($R^2_{CS} = .03$; $R^2_N = .05$) or model fit, $\chi^2(1) = 2.48$, $p = .12$. The final block containing the interaction term also did not increase explanatory power ($R^2_{CS} = .03$; $R^2_N = .05$) or model fit, $\chi^2(1) = .57$, $p = .45$.

In the next logistic regression analysis, the addition of the school bonding measure to the model in the second block increased explanatory power ($R^2_{CS} = .06$; $R^2_N = .10$) and significantly improved model fit, $\chi^2(1) = 8.79$, $p = .003$. Similar to the results from the multiple regression analysis, school bonding was a significant inverse predictor of the likelihood of being aggressive ($B = -2.93$, $p = .004$). The final block with the interaction term did not increase explanatory power ($R^2_{CS} = .06$; $R^2_N = .10$) or model fit, $\chi^2(1) = .71$, $p = .40$.

In the final independent logistic regression analysis, the addition of involvement in church activities to the model did not improve explanatory power ($R^2_{CS} = .03$; $R^2_N = .04$) or model fit, $\chi^2(1) = 1.63$, $p = .20$. The final block containing the interaction term also did not increase explanatory power ($R^2_{CS} = .03$; $R^2_N = .04$) or model fit, $\chi^2(1) = .14$, $p = .71$.

The results for boys are available in Table 12. For boys, the first block included the variables representing membership in high or moderate risk configurations accounted for a substantial amount of variance in being classified as aggressive ($R^2_{CS} = .05$; $R^2_N = .10$). The block was a significant improvement in fit over the constant-only model, $\chi^2(2) = 7.10$, $p = .029$. Similar to results in the multiple regression analyses, only the *high risk* variable was a significant predictor of being aggressive ($B = 1.85$, $p = .025$).

The second block in the first independent regression analysis contained involvement in school activities. The addition of this variable further improved explanatory power ($R^2_{CS} = .09$; $R^2_N = .17$) and model fit, $\chi^2(1) = 5.48$, $p = .019$. Specifically, involvement in school activities was a significant inverse predictor of being in the aggressive group ($B = -1.11$, $p = .031$). The final block with the interaction terms did not increase explanatory power ($R^2_{CS} = .09$; $R^2_N = .17$) or model fit, $\chi^2(2) = .24$, $p = .89$.

The second block in the next independent regression analysis contained school bonding and it did not improve explanatory power (R^2_{CS} = .05; R^2_N = .10) and model fit, $\chi^2(1)$ = .02, p = .88. The third block with the interaction terms also did not increase explanatory power (R^2_{CS} = .06; R^2_N = .12) or model fit, $\chi^2(2)$ = 1.43, p = .49.

The final independent regression analysis entered involvement in church activities as the second block. The addition of this variable did not improve explanatory power (R^2_{CS} = .05; R^2_N = .10) and model fit, $\chi^2(1)$ = .36, p = .55. The interaction terms were entered next and these also did not increase explanatory power (R^2_{CS} = .06; R^2_N = .11) or model fit, $\chi^2(2)$ = .36, p = .84.

Gender Differences between Regression Coefficients

Results from regression analyses indicated that school bonding protected against the development of aggression in girls. For boys, involvement in school activities served a protective function for general (i.e., peer-assessed) aggression. Participation in church activities was not directly involved in nor moderated the development of aggression for girls or boys. It is important to refrain from interpreting the results of this study to this point as indicating that school bonding was not influential for boys and school activities was not for girls. Specifically, as of yet there is no statistical basis for this conclusion because there was not an inferential test for significant gender differences (Hardy, 1993).

In order to draw a definitive conclusion, a test for a significant difference between the regression coefficients for girls and boys was necessary. Specifically, a z test of the difference between regression coefficients was used to determine whether there was a significant gender difference (Brame, Paternoster, Mazerolle, & Piquero, 1998; Paternoster, Brame, Mazerolle, & Piquero, 1998). For these tests, the regression coefficients from the

second block were employed because the third block and the interaction terms did not account for any significant additional variance. Results indicated that the regression coefficients of school activities and school bonding on peer-assessed aggression were not significantly different for girls and boys ($z = .92$, $p > .05$; $z = -1.69$, $p > .05$, respectively).

Differences between Those Included and Deleted from Analyses

The use of listwise deletion may adversely impact results (Choi, Golder, Gillmore, & Morrison, 2005; Collins, 2006; Schafer & Graham, 2002). Specifically, selection effects and data that are not missing completely at random can produce biased estimates because the sample with complete data may not be representative of the entire study population. Thus, generalizability could be limited (Tabachnick & Fidell, 2001). Determining if data are not missing completely at random is difficult, but steps were taken to explore for evidence of selection effects.

Specifically, independent samples *t*-tests were completed to examine for differences between participants who were dropped from and included in analyses on peer-assessed aggression. The variables used to derive (i.e., ICS-T aggression, academics, and popularity) and validate (i.e., ICS-S aggression, academics, popularity and school grades in 7th) the early adjustment configurations were employed in these analyses. In addition, evidence for selection effects was also explored across the early adjustment configurations and on the outcome measure. If there were no differences between those deleted from and included in analyses, various data handling decisions (e.g., imputation or listwise deletion) should not have affected the results (Tabachnick & Fidell, 2001).

As shown in Table 13, girls who were dropped were comparable to those included in analyses on nearly all measures. Specifically, there was not a significant difference on the

following: teacher-rated academics, $t(228) = .10$, $p = .92$, and popularity, $t(228) = -.30$, $p = .77$; self-reported aggression, $t(213) = .04$, $p = .97$, academics, $t(215) = -.04$, $p = .99$, and popularity, $t(201) = .77$, $p = .44$; and school achievement in the 7th grade, $t(210) = .33$, $p = .75$. Teachers rated girls who were dropped from subsequent analyses ($M = 3.34$, $SD = 1.63$) as significantly more aggressive than those included ($M = 2.73$, $SD = 1.39$), $t(226) = 2.19$, $p = .029$. However, there was not a significant difference on 9th grade peer-assessed aggression, $t(228) = -1.57$, $p = .12$. In addition, there was not a significant relationship between being dropped from these analyses (versus retained) and the early adjustment configurations, $\chi^2(5) = 4.19$, $p = .52$.

Similar to girls, boys that were dropped from analyses were similar to those included on nearly all measures. Specifically, there was not a significant difference on the following: teacher-rated aggression, $t(189) = .16$, $p = .88$), and academics, $t(189) = -.66$, $p = .51$; self-reported aggression, $t(142) = .52$, $p = .61$; popularity, $t(132) = -.24$, $p = .81$; and academics, $t(144) = -1.57$, $p = .12$; school achievement in the 7th grade, $t(139) = -.24$, $p = .82$; and peer-assessed aggression in the 9th grade, $t(170) = 1.24$, $p = .22$. However, teachers rated those included in analyses as more popular than those who were dropped, $t(189) = -2.12$, $p = .035$. Finally, there was not a significant relationship between being dropped from these analyses (versus retained) and the early adjustment configurations, $\chi^2(4) = 1.02$, $p = .91$.

CHAPTER VII

SUMMARY OF RESULTS

Aggression is a significant educational and social issue that impacts several important outcomes for students. To date, our identification of protective factors for aggression and those that may be specific to African American youth living in impoverished rural areas is limited. Consequently, our ability to develop effective intervention and prevention programs to address this contemporary educational and social matter for rural African American and other students is hindered (Luthar & Cicchetti, 2000). African American youth living in the rural Deep South are exposed to one of the most potent factors influencing development, poverty (McLoyd, 1998). Moreover, the poverty African American youth experience in this area is among the most chronic and severe (Brody, Dorsey, et al., 2002; Brody, Murry, et al., 2002; Brody et al., 2003). Thus, research clarifying sources of support that could be informative for intervention and prevention efforts is vital (Farmer, et al. 2004; Murry & Brody, 1999). To address these needs, the current investigation was undertaken to identify protective factors for aggression among rural African American youth. Some key findings provide insights relevant to the above issues and others as well. Several strengths and extensions of the current knowledge base are also apparent in this study. However, some limitations are evident and should be considered as well. Finally, suggestions for future research can be derived from this investigation.

Review of Findings

Analyses examining the nature of risk and support evident in the variables used to derive the early adjustment configurations produced some informative results. Early aggression and academic functioning predicted subsequent peer-assessed aggression as expected. Specifically, higher aggression and lower academics in late elementary school predicted higher aggression in early high school. Alternatively, lower aggression and higher academics at the end of elementary school predicted lower subsequent aggression. Contrary to expectations implied in the second hypothesis, higher popularity was a risk as it predicted higher subsequent aggression. Conversely, lower popularity predicted lower aggression in 9th grade which indicated it was a source of support and strength.

As postulated in the first hypothesis, distinct early adjustment configurations were identified from teacher ratings of aggression, academics, and popularity. Several configurations with a similar profile were apparent across girls and boys and these included Model, Disengaged, and Troubled girls and boys. However, there were some differences between girls and boys on the early adjustment profiles. Perhaps most obvious, some profiles unique to each gender emerged and included Aggressive girls, Popular girls, and Average boys. Though an aggressive-popular profile (i.e., Tough) was found among both girls and boys, there was a difference. In particular, Tough girls had elevated early academics while Tough boys had well below average academics.

These early adjustment configurations generally reflect those found in previous research. Specifically, similar configurations have been identified across diverse samples (Farmer et al., 1999; Rodkin et al., 2000) such as African American children living in an inner city (Estell et al., 2003) and 3rd grade Swedish boys (Mahoney, Stattin, & Magnusson,

2001). In addition, comparable behavioral configurations have been identified across various developmental periods including during the first grade (Estell, Cairns, et al., 2002; Estell, Farmer, et al., 2002), late elementary grades (Estell et al., 2003), and middle school years (Mahoney & Cairns, 1997). Though distinct configurations sharing a high level of aggression are not always found (e.g., Cadwallader et al., 2002), many studies have differentiated configurations similar to those labeled Tough and Troubled (e.g., Farmer et al., 1999, 2002; Mahoney & Cairns, 1997; Rodkin et al., 2000). However, some studies have not identified configurations similar to the Troubled (e.g., Estell, Cairns, et al., 2002; Estell, Farmer et al., 2002) and Tough early adjustment configurations (e.g., Farmer et al., 2003; Gest, Mahoney, & Cairns, 1999; Mahoney, 2000).

Contrary to the first hypothesis, there was not an early adjustment configuration for girls that met the criteria of the moderate risk condition. Rather, there were multiple configurations that met the definition of and were classified within the low and high risk conditions. There were early adjustment configurations that were classified into each risk condition for boys. Furthermore, more than one profile was categorized into the moderate and high risk conditions. Analyses to validate the early adjustment configurations indicated that some participants in the high risk condition (i.e., Troubled girls and boys) had significantly lower teacher- and/or self-rated popularity than some low risk youth (e.g., Model). Due to the unexpected function popularity served and the identification of multiple configurations classified within the high risk condition, some high risk youth (i.e., Tough girls and boys and Popular girls) had teacher- and/or self-rated popularity that was comparable to some low risk youth (i.e., Model). In addition, there was a high risk early

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adjustment configuration that had low levels of early aggression similar to low risk youth (i.e., Popular and Model girls).

In summary, the first and second hypotheses were partially supported by results. Specifically, there were distinct early adjustment configurations identified (i.e., the first hypothesis). There were configurations that met the criteria for constituting a low, moderate, and high risk condition for boys. However, there were only configurations that met the definition of being considered low and high risk conditions for girls. In general, results also provided a measure of validation for the early adjustment configurations as meaningful and logical differences were apparent (i.e., the second hypothesis). However, this was not unequivocal. For example, Tough girls and boys rated themselves as more aggressive than Model youth. Nonetheless, Troubled girls but not Troubled boys indicated they were more aggressive than Model youth despite both Troubled girls and boys having teacher-ratings indicating they were the most aggressive. Several pairwise comparisons on the measure of school achievement in 7th grade provided additional validation for the early adjustment configurations. For example, Tough and Troubled boys had lower achievement than Model boys. Only Troubled girls had lower end-of-year grades than Model girls, but this was reasonable because Tough girls had above average academic competence in 6th grade.

Regression analyses indicated that high risk early adjustment configurations predicted significantly higher peer-assessed aggression in the 9th grade for both girls and boys. Results also demonstrated that school activities and school bonding protected against the development of aggression. Contrary to other expectations, participation in church activities was not directly involved in nor moderated the development of aggression for girls or boys. It should be noted that these are not interactive protective effects. As such, these variables

were, according to Luthar et al. (2000), protective but other researchers have labeled these a *compensatory* (e.g., Garmezy et al., 1984) or *promotive* effect (Sameroff, 1999). Thus, these results provided support for one aspect of the third hypothesis guiding this investigation.

Significance of Study

Broadly, the results of the current investigation add to the limited knowledge about protective factors for aggression and sources of support among rural African American adolescents. These findings are also significant because most previous research on aggression has clarified risk factors and involved children (Herrenkohl et al., 2003; National Center for Injury Prevention and Control, 2002; Yoon et al., 2004). In addition, most studies with African American youth have been undertaken in urban rather than rural settings (Cadwallader et al., 2002; Reese et al., 2001; Spoth, 1997; Tolan et al., 2003; Wilkinson & Fagan, 2001; Xie et al., 2003). The dearth of research with African American youth who live in the rural Deep South is particularly striking given that one of the most potent risks for aggression, severe and chronic poverty, is rife in these communities. Moreover, some of the factors that served a protective role are modifiable and within the purview of schools. Thus, results of the current study could be informative to educators and school-based prevention efforts seeking to reduce aggressive behavior among students.

The current study augments the few studies of behavioral development and positive adaptation that have incorporated a developmental framework. Specifically, this study broadens the traditional variable-oriented developmental research approach by the use of methods that are more commensurate with current developmental theory (Bergman & Magnusson, 1997; Cairns & Rodkin, 1998; Magnusson, 2003; Masten, 2001; Masten et al., 1999). In addition, most of the previous research on positive adaptation has identified factors

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correlated with outcomes of interest in those already doing well rather than following individuals with similar early profiles of functioning across time (Mahoney & Bergman, 2002). The guidance of developmental theory in the design of this study (e.g., study window selected to examine adaptation) also addresses a major criticism of and limitation in previous resilience research as well. Namely, most research of this nature has not been guided by theory (Luthar et al., 2000).

The use of person-oriented procedures also provided a means to address a concern voiced by educators and researchers focused on the development of rural and minority youth. Specifically, the identification of early adjustment configurations captured the heterogeneity of risks and strengths within rural and African American youth that has traditionally been neglected (Farmer et al., 2004; Garcia Coll et al., 1996; Larson & Dearmont, 2002; McLoyd, 1990). The current study reflected past person-oriented risk research but broadened this work to distinct developmental outcomes. Previous person-oriented longitudinal studies have identified multiple risk configurations and these have been shown to predict higher rates of school drop-out, criminal offenses, teenage parenthood, and social competence but not aggression (Cadwallader et al., 2003; Cairns et al., 1989; Farmer et al., 2004; Mahoney, 2000; Mahoney et al., 2001; Mahoney & Cairns, 1997).

The current investigation augments the limited number of resilience studies undertaken by educational researchers (Waxman, Huang, & Padron, 1997; Wayman, 2002). In addition, most educational studies of resilience (e.g., Connell, Spencer, & Aber, 1994; Finn & Rock, 1997) have used group membership (e.g., live in poverty) definitions of antecedent risk (Cappella & Weinstein, 2001; Catterall, 1998). However, a few resilience studies conducted by educational researchers have used behavioral antecedent risk measures

(e.g., Cappella & Weinstein, 2001; Catterall, 1998; Jimerson, Egeland, & Teo, 1999). Though this represents an improvement over the operationalization of antecedent risk by group membership, these also have limitations. Specifically, these studies have typically only considered a single proximal behavioral index of student risk (e.g., low academics). Thus, the use of multiple measures capturing behavioral functioning in several components of the person-in-context system extends this work as well.

The results of this study also pertain to the broad literature focused on student engagement. Numerous constructs are indices of the distinct forms of student engagement that have been identified. Specifically, student engagement can be apparent in behavior (e.g., pays attention and participates in extracurricular activities), emotion (e.g., feelings about teacher or school), and cognition (Fredricks, Blumenfeld, & Paris, 2004). Participation in extracurricular activities at school is considered a measure of behavioral engagement. Furthermore, some have theorized that participation in school activities, at least those that are academically-oriented, reflects a higher level of student engagement (Finn, 1989). Emotional engagement refers to students' feelings about or reactions to their teachers, classmates, school, or schoolwork (Fredericks et al., 2004). Measures of emotional engagement also include a variety of constructs such as school bonding, school belonging, student interest, and connection to teachers.

Despite the multidimensional nature of student engagement, most studies have focused solely on behavioral engagement and have been cross-sectional (Fredericks et al., 2004). Though a leading theory of student engagement by Connell and colleagues (Connell, 1990; Connell & Wellborn, 1991) hypothesizes that engagement also increases social and emotional adjustment this has not received much, if any, empirical attention. Thus, the

current research adds to the dearth of longitudinal research on student engagement, those that have examined the function of both behavioral and emotional engagement, and the impact of engagement on important social-emotional outcomes. The research base on student engagement is also extended by this investigation to a population that has previously rarely been involved in this work (i.e., rural African American youth).

The results of this study additionally contribute to the knowledge base regarding the developmental benefits of extracurricular activities. Some previous results have indicated that involvement in school activities can be protective (Cappella & Weinstein, 2001; Catterall, 1998; Mahoney, 2000; Mahoney & Cairns, 1997; Mahoney et al., 2003). However, this has not been ubiquitous (e.g., Finn & Rock, 1997). In addition, definitive conclusions are difficult because most research on extracurricular activities has been undertaken with students living in higher socioeconomic conditions and even fewer have accounted for correlated packages of risk (Bartko & Eccles, 2003; Jordan & Nettles, 2000; Mahoney & Cairns, 1997). Some exceptions to this are evident in the work by Mahoney and colleagues (Mahoney, 2000; Mahoney & Cairns, 1997; Mahoney et al., 2003). These studies have demonstrated that extracurricular activities can serve a protective function against multiple behavioral risks but this has been in relation to outcomes (i.e., school drop-out, criminal arrest, and educational aspirations) different from those examined in the current investigation.

Finally, the current study adds to the budding work on a particular type out-of-school activity involvement. Specifically, church involvement has been identified as an important source of informal support among African Americans (Taylor et al., 1996). Some findings have been suggestive of a protective effect (e.g., Gutman & McLoyd, 2000; Regnerus &

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Elder, 2003). However, involvement in church activities did not serve a protective function in the current study. The lack of a significant effect in the present study may be due to several methodological differences or simply reflect the fact that a variable does not universally serve the same function for all outcomes, youth, or in all contexts. For example, Gutman and McLoyd (2000) identified high and low achieving African American youth living in poverty and found that high achievers were involved in more church activities.

In addition, Regnerus and Elder (2003) examined church attendance rather than involvement in activities beyond basic attendance as in the current investigation. Furthermore, the antecedent risk examined by Regnerus and Elder (2003) was neighborhood poverty rather than correlated packages of behavioral risk and their study involved a nationally representative sample of adolescents. The outcome variables in the present study were also more narrow (i.e., aggression) and different from the broad measure of *educational success* (i.e., composite of GPA, no trouble getting homework done, gets along with teachers, never being expelled or suspended, and not skipping classes) employed by Regnerus & Elder (2003). In summary, the previous work that has been indicative of a protective function for church activities has primarily focused on achievement rather than aggression, has employed different methodologies, and has involved samples distinct from that in the current investigation.

Strengths and Limitations

The nature of this study is a significant limitation. Though the current investigation provides important foundational work for the prevention of aggression, the results do not provide definitive evidence for causation. Yet the longitudinal nature of the investigation affords stronger support than cross-sectional correlational research. Regardless, studies such

as this form the basis to develop and test prevention programs (Greenberg, 2004; Masten &

Coatsworth, 1998). The use of experimental or powerful quasi-experimental longitudinal

designs to evaluate the efficacy of prevention programs based on this foundational work is

needed to provide more robust tests of causal processes. The results of this study may also

have limited generalizabilty. Consequently, it cannot be assumed that these findings are

applicable to other rural youth or African American adolescents in non-rural settings.

The conceptual framework and analyses encompass several strengths but these have

some additional limitations as well. The conceptual framework and configural analyses are

more reflective of current developmental theory and captured the heterogeneity of strengths

and risks in rural and minority youth. However, the model and analyses are also still an

oversimplification of development in several respects. First, it is possible that the variables

used to derive the early adjustment configurations themselves were also operant and changed

during middle school. Yet, the conceptual framework and analyses imply that these factors

have their influence on development at one time and that this is constant.

Some evidence suggests this could be a valid position. Specifically, stability has been

demonstrated in various developmental phenomena including the early adjustment factors in

this study. For example, longitudinal studies have found that a majority of youth in a

particular early adjustment configuration have a similar adjustment the following year (e.g.,

Estell, Cairns, et al., 2002; Estell, Farmer, et al., 2002). Even though change in these

constructs and configurations might be minimal, there was no direct test of this in the current

investigation. Consequently, this is an important limitation of this study.

Some additional developmental complexities may also have been ignored. Despite the

stability of the early adjustment configurations, it is possible that these variables and profiles

differentially function and influence developmental outcomes over time. Variable-oriented analyses have, for example, found distinct developmental trajectories for these constructs and that these can vary across individuals. Specifically, growth curve analyses by Xie et al. (2001) demonstrated that teenage mothers' popularity across adolescence was, in comparison to girls who did not become teenage mothers, variable and had significant linear, quadratic, and cubic changes over time. In contrast, the academic competence of teenage mothers had, in comparison to non-mothers, a significant linear decline but their aggression was elevated and stable. The stability notion also contradicts a fundamental idea underlying the central concept and theory guiding the current study. Specifically, the resilience construct inherently indicates that change is possible and current developmental theory purports that individuals are adaptive and dynamic systems.

Strengths and weaknesses are evident in the inclusion of some variables but not others. The examination of risk and potential protective factors that are modifiable and within the purview of educators is clearly important for school-based prevention efforts. In addition, the inclusion of what has been considered a culturally important source of support for African Americans in the South (i.e., church activities) was also an asset. However, other sources of risk and protection that may impact development were not investigated. For example, discrimination and ethnic identity were not examined and leading researchers have argued and provided evidence for their importance to the development of African American youth (e.g., Clark, Anderson, Clark, & Williams, 1999; Garcia Coll et al., 1996; Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004; McLoyd, 1998; Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003). In addition, Brody and colleagues have demonstrated the impact of various family and parental factors, such as maternal psychological functioning

and childrearing efficacy beliefs, on the development African American youth in rural southern communities (e.g., Brody et al., 2002; Brody & Flor, 1997; Brody, Flor, & Gibson, 1999; Brody, Kim, Murry, & Brown, 2004). Other contextual variables that contribute or relate to students' aggression that were not included in this study is the aggressiveness of their peer affiliates (e.g., Cadwallader et al., 2002; Farmer et al., 2002, 2003).

The absence of the above and other factors harbors some limitations that pertain to the results of the current study. First, the exclusion of some variables prevented an examination of the interactions between multiple components and levels of the person-in-context system that are deemed important by developmental theory and supported by other aggression research. For example, the aggressiveness of students' peers is related to their own aggression (Cadwallader et al., 2002; Farmer et al., 2002, 2003). In addition, the peer microsystem can interact with individuals' behavior and, in particular, some variables included in the current investigation. For example, Mahoney (2000) found that when multiple risk youth themselves and their peer group members were both involved in extracurricular activities then the likelihood of school drop-out or being arrested by young adulthood was significantly lower than either condition alone. In addition, Xie et al. (2001) demonstrated that boys' early adjustment configurations interacted with peers' configurations in the prediction of teenage parenthood.

Second, the omission of variables can and may have statistically biased the results. Specifically, when variables are omitted and these are correlated with other predictors included in analyses then the likelihood of bias is substantially increased (Kline, 1998). In addition, the results of regression analyses are especially sensitive to the combination of variables that are included as predictors (Tabachick & Fidell, 2001). Given the importance of

family for rural African American youth (e.g., Brody & Flor, 1997; Brody et al., 1999, 2002, 2004), the addition of such variables may have rendered the proposed factors in the current investigation non-significant. It has been suggested that family factors may even override the influence of peers for rural African American youth in particular (Estell et al., 2003). Thus, a serious limitation in the current study is the exclusion of other important factors.

Even so, the omission of some variables that are likely significant factors in the development process is not unique to this study. Various practical and other constraints typically limit researchers from studying all relevant factors at all levels of the person-in-context system that impact may development (Magnusson & Cairns, 1996). Homogenous groups are often derived at a single level of the person-in-context system because obtaining configurations at several levels requires large sample sizes (Mahoney, 2000). Furthermore, studying multiple levels of the person-in-context system simultaneously may overly complicate findings and the interpretability of results (Magnusson & Cairns, 1996). In addition, this limitation is partially inherent in the nature of this study. Specifically, the use of secondary data analyses in the current investigation prohibits the use of other potentially influential variables due to their unavailability.

An interrelated set of criticisms concerning the use of cluster analysis stems from the simplicity and structure imposing nature of these methods (Aldenderfer & Blashfield, 1984; Bailey, 1994). First, cluster analytic procedures are simple algorithms or heuristics and are not based upon an extensive body of statistical reasoning. Furthermore, there are numerous clustering algorithms because this methodology encompasses a broad array of procedures that developed from and to address the needs of several different disciplines. Even so, the use of Ward's (1963) algorithm to form clusters in the current study can be considered a strength

of the investigation because this method has demonstrated superior recovery of known clusters and even more so when there are few outliers. Second, cluster analytic methods are generally structure imposing. In other words, these procedures can impose structure, in the form of clusters, on data even when it does not really exist. The simplicity, diversity, and structure imposing facets of clustering methods can result in clusters being formed that are not real and may or may not be apparent depending on the particular algorithm.

These criticisms suggest that caution is warranted when considering the validity and generalizability of the early adjustment configurations. However, the analyses addressing the second hypothesis guiding the current investigations provided some means to validate these configurations. Furthermore, this constitutes an additional strength of the current investigation because despite several authors' contention regarding the importance of cluster validation this has rarely been done in practice (Aldenderfer & Blashfield, 1984; Bailey, 1994). The fact that the early adjustment configurations and resultant risk conditions predicted outcomes of interest in the current and previous studies also supports their validity. Previous investigations have identified similar early adjustment configurations but these utilized similar clustering procedures as the current study. Thus, a more robust additional test of the validity of the clusters would entail not only replicating them across different studies and samples but with different clustering methods (Bailey, 1994).

The use of multiple and logistic regression analyses harbor both strengths and limitations. The use of multivariate and process-oriented analyses in the current investigation provide more powerful test of protective effects and processes. These methods are more informative than early resilience studies that tested for differences between resilient and non-resilient youth (Masten, 1999) and are still are periodically employed (e.g., Rouse, 2001).

However, multiple and logistic regression analyses do not account for the error that is inherent in all measures (Kline, 1998). Specifically, regression analysis assumes that the variables included in the model have no measurement error. Alternatively, the use of multiple indicators and latent variables in structural equation models could provide a means to estimate and remove measurement error. The removal of measurement error can also improve power and the accuracy of estimates.

The use of listwise deletion could be considered an additional limitation of the current investigation. Specifically, this method of handling missing data can bias results because selection effects may occur when data are not missing completely at random (Choi et al., 2005; Collins, 2006; Schafer & Graham, 2002). As a result, the sample with complete data would not be representative of the study population. However, analyses were undertaken to test for evidence of selection effects. Results indicated that there were not systematic differences between participants who were dropped from and included in analyses on peer-assessed aggression. Thus, there was not any evidence that selection effects occurred and that results may be biased because of these data handling decisions (Tabachnick & Fidell, 2001). Even so, the loss of subjects and data produced a loss of power and this may have impacted the ability to detect some significant main and interaction effects.

Both strengths and limitations are also apparent in the types of measures and sources of information. The use of multiple informants and measures were, in general, strengths of the current study. Specifically, the use of multiple informants to provide measures of the independent (i.e., teacher-report), moderator (i.e., self-report), and a dependent variables (i.e., peer-assessed aggression) likely limited problems with shared measurement variance. The cross-informant validation of the early adjustment configurations also constitute an

advantage and a recommended practice that is rarely heeded (Aldenderfer & Blashfield, 1984; Bailey, 1994; Roeser & Peck, 2003). However, the data used to validate the early adjustment configurations was self-report which does have limitations such as self-enhancement and social desirability.

Other strengths and limitations are evident in relation to the peer-assessed aggression measure. First, peer nomination procedures are considered to be highly reliable and valid measures. Peer assessment data constitutes information from multiple raters or observations of same behavior and, as such, no single rater has an inordinate influence on the data for a particular student as in single-respondent rating scales (Huesmann et al., 1994). Second, the peer-assessed aggression factor also included measures of the forms of this behavior utilized by girls and boys. Specifically, the peer-assessed aggression measure contained an index of social-relational aggression (i.e., "starts rumors") which has been often found to be the more common manifestation of aggression in girls (Merrell, Buchanan, & Tran, 2006). However, the measure of social-relational aggression was combined with measures of direct and physical aggression (i.e., "starts fights" and "bully"). Thus, the function of the early adjustment risk configurations and the proposed protective factors in relation to these distinct forms of aggression was not examined. This is unfortunate because relatively few studies have separated physical from other forms of aggression even though many argue for the importance of distinguishing different types of aggression (Brendgen, Vitaro, Tremblay, & Lavoie, 2001; National Center for Injury Prevention and Control, 2002; Tolan, 2001).

There is a potential limitation concerning the measurement of extracurricular activities in the current study. Specifically, the average number of activities across middle school as a measure of this proposed protective factor would be considered a limitation by

some researchers. Several have advocated for the use of more detailed categories capturing distinct types of activities or person-oriented procedures to identify profiles of students' extracurricular participation (Bartko & Eccles, 2003; Schreiber & Chambers, 2002). These authors contend that ignoring the specific types or breadth of students' activities may obscure important different functions served by distinct activities and may not accurately portray the complexity of students' extracurricular involvement. However, there has been little work to directly test this supposition, but one study has demonstrated that multiple types of school activities can serve a protective role (Mahoney & Cairns, 1997).

Future Research Directions

The limitations discussed above inherently prescribe several directions for future research. Additional research should be undertaken to further examine if involvement in church activities is involved in a protective process. This work should also determine if this varies across other populations, in different contexts, and for other important developmental outcomes. Likewise, the role school activities and school bonding may serve in other populations and for other outcomes should also be examined. The study of developmental pathways and the stability of the early risk variables and configurations across early adolescence could clarify how these factors function during this developmental period. Future research should also include other variables that are potentially important factors in the development of rural African American youth. These would include, for example, discrimination and ethnic identity (e.g., Clark et al., 1999; Garcia Coll et al., 1996; Gibbons et al., 2004; Sellers et al., 2003), key family factors (Brody & Flor, 1997; Brody, Flor, & Gibson, 1999; Brody et al., 2002, 2004), and peer affiliations (e.g., Cadwallader et al., 2002; Farmer et al., 2002, 2003).

The use of person-oriented methods captured the variability of risk and strengths in rural African American youth. However, more work is needed to further test the validity of the early adjustment configurations by replicating them with different clustering methods (Bailey, 1994). Once these configurations are identified and validated further, the use of structural equation modeling could be used remove the error inherent in dependent and other (e.g., control) variables. In addition, the use of missing data procedures such as full maximum likelihood estimation may also reduce the number of cases and power that was potentially lost in the current study (Schafer & Graham, 2002). Future work should also disentangle or include measures of social-relational aggression and direct-confrontational aggression and examine if the current findings vary across these distinct types of aggressive behavior. Finally, applying the implications of results from this study in experimental or powerful quasi-experimental designs may provide robust tests of the causal effects underlying the protective factors.

CHAPTER VIII

DISCUSSION

The results of this study also have important implications for how risk is defined and addressed. Specifically, efforts to reduce the risk stemming from a high risk adjustment configuration should be comprehensive, multifaceted, and incorporate developmental principles (Dahlberg & Potters, 2001; Farmer & Farmer, 2001; Pianta & Walsh, 1998; Valois, MacDonald, Bretous, Fischer, & Drane, 2002). Prevention efforts should actively seek to identify and begin early when high risk configurations are evident. In addition, the main effects apparent for the proposed protective factors suggest that these sources of protection in early adolescence should be sustained or improved. Leading theories and research on student engagement indicate that there are actions educators can take to maintain or increase students' involvement in school activities and school bonding.

The application of these results in prevention efforts may encounter and need to consider some challenges that are unique to impoverished rural schools and communities. In order to develop and implement effective programs for high risk youth, collaborative efforts between educators and researchers will also be essential (Boxer, Musher-Eizenman, Dubow, Danner, & Heretick, 2006; Greenberg, 2004; Spoth, Guyll, Trudeau, & Goldberg-Lillehoj, 2002). The current educational context focused on accountability suggests that teachers and researchers will likely need to formulate clear goals and measures of desired outcomes for

school-based prevention efforts (Greenberg, 2004). Once these are clearly delineated, collaboration between teachers and researchers should continue because this can improve the implementation and effectiveness of prevention programs in rural schools (Spoth et al., 2002).

Implications of Risk and Early Adjustment Configurations

The results of and developmental theory guiding the current investigation harbor several implications that are important for how risk should be conceptualized, identified, and addressed. First, results indicated that high popularity was unexpectedly a risk factor for subsequent aggression. This finding suggests and reiterates that the determination of what constitutes a risk factor should be based upon empirical evidence. Though this finding was unexpected and is probably counterintuitive to many, this does not contradict developmental theory and current thinking on resilience. Developmental theory asserts that the function a variable serves is the result of complex interactions between many variables within and across different levels of the person-in-context system (Bergman & Magnusson, 1997; Kaplan, 1999; Magnusson, 2003; Masten et al., 1988; Rutter, 1987). Thus, a specific factor can be both a source of risk or protection when embedded in a unique constellation of variables or in relation to different outcomes.

Similar counterintuitive findings have been found in previous resilience research as well. Specifically, Luthar (1991) found that though higher intelligence is generally protective for children it was a risk factor in inner-city adolescents. Luthar (1991) suggested that this unexpected finding might have been the result of parents providing too much freedom to competent youth in this high risk environment. Research on peer relations also suggests that popularity may be a risk factor for aggression. For example, students who are both aggressive

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and popular (i.e., Tough) are considered as the most popular by their peers and even more so than Model youth (Farmer et al., 2003). In addition, students who are aggressive and popular (i.e., Tough) affiliate with aggressive peers while aggressive boys with average popularity affiliate with non-aggressive peers (Farmer et al., 2002).

Second, results from this study reveal that identifying students as at-risk with distal measures of group membership (e.g., live in poverty) does not accurately reflect nor fully represent the variation of risk within the sample. In other words, all individuals within a group, that some may consider high risk because of a single distal factor, are not equally at risk. Rather, there are individuals within a high risk sample with few or no risks and it is multiple risk individuals who are most likely to experience a continuation of or increase in aggression. This is particularly important because there are finite resources for costly and time intensive prevention efforts (Condly, 2006). The fact that multiple risk configurations were predictive of subsequent aggression also suggests that prevention efforts should begin early. Furthermore, teachers and schools should actively attempt to identify those who are at-risk because such youth will not likely seek out the support they need (Condly, 2006).

A caution is warranted here. The results of this study do not permit one to conclude that low risk youth within the current sample are more or less aggressive in 9th grade than students who do not live in impoverished rural settings. For example, low risk youth in this sample may be more aggressive than adolescents who do not live in economically disadvantaged rural communities. If this were the case then one might surmise that there is variation in risk within the sample but relative to some other population the entire sample could be considered at risk.

Another important implication concerning how risk should be addressed stems from the lack of a significant interaction between the early adjustment risk conditions and the proposed protective factors. The absence of a significant interaction indicates that there is no evidence participants' bonding to school and involvement in school activities directly interacts with and alters these early adjustment risk conditions. Rather, the main effects found for the risk and protective factors in the current study suggest that these have an independent reductive function on subsequent aggression. Consequently, this implies that prevention and intervention efforts should seek to both reduce these risks and bolster sources of protection (Masten, 2001; Miller, Brehm, & Whithouse, 1998).

Researchers have identified some strategies that teachers and schools may use to effectively reduce the early risks evident in aggression problems and low academics. A recent meta-analysis of programs schools use on an on-going basis (i.e., are not implemented and evaluated by researchers mainly for research purposes) found that behavioral classroom management and counseling services resulted in the greatest reduction of aggressive behavior (Wilson, Lipsey, & Derzon, 2003). Another meta-analysis of interventions to reduce aggressive and disruptive classroom behavior revealed that the three most effective classroom strategies were group contingencies, self-management, and differential reinforcement (i.e., reinforcement for not engaging in the undesired behavior for a specified time or less frequently) (Stage & Quiroz, 1997).

Similar techniques can also improve students' academics. These are also practical because they require less continuous direction and responsibility from teachers. Self-monitoring (i.e., self-management) and self-instruction have both been found to increase student learning across various subjects and tasks (Shapiro, 1996). These have also produced

educationally meaningful effects (i.e., a large average effect size) on the academics of students with behavioral issues (Mooney, Ryan, Uhing, Reid, & Epstein, 2005). In addition, various peer mediated interventions (e.g., peer tutoring, cooperative learning) are effective (Shapiro, 1996). These can improve the academics of students with emotional and behavioral difficulties (Ryan, Reid, & Epstein, 2004) and are effective in the elementary school grades as well (Rohrbeck, Ginsburg-Block, Fantuzzo, & Miller, 2003). Thus, these practical academic interventions could help to reduce the risks (i.e., aggression and low academics) apparent at the end of the elementary school years.

Some additional implications from this study and developmental theory guiding it also concern how risk should be addressed by schools and prevention programs. Specifically, differentiating individuals with multiple risks from those with a few or no risks is not only important for determining who is most at-risk but also for how to deal with this (Farmer et al., 2004). Low risk youth with multiple strengths should be monitored to check that multiple risks do not begin to emerge (Farmer, 2000a; Farmer et al., 2004). For moderate risk youth, monitoring to ensure that they do not evidence a progression towards having multiple risks is suggested and should be coupled with efforts to sustain their current strengths.

The tactic for intervening with multiple risks should be distinct from that for those with few or no risks. The presence of multiple risks and the developmental principle indicating these are interrelated suggest that programs addressing a single factor are not likely to produce any lasting effect for high risk youth (Farmer, 2000a; Farmer & Farmer, 2001). Because these risks are interrelated this produces a resistance to change within the person-in-context system. Consequently, efforts to change one aspect of students'

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functioning will not likely lead to sustainable changes unless related behaviors are targeted as well (Farmer, 2000a). Furthermore, clarifying how unique constellations of risk factors within high risk individuals interact to sustain their behavior is essential (Farmer, 2000a; Farmer et al., 2001, 2004; Pianta & Walsh, 1998).

For example, aggressive behavior or low academic success may be providing some students with status or popularity among their peers. In addition, these may lead to such students being put in learning groups with other aggressive or low achieving classmates. Efforts to reduce aggression only may not likely be effective in this situation. Rather, a program should also seek to eliminate the recognition students receive for their aggressive behavior and underachievement. In addition, ensuring aggressive or low achieving students have opportunities to interact with, receive support from, and learn from less aggressive or more academically successful students could also be important. For example, the use of cooperative learning and forming groups of students that are heterogeneous in terms of their academic skills and prosocial behavior could be effective. Teachers may also need to provide public reinforcement for these behaviors in order to counter or reduce the recognition students receive for aggression or underachievement.

It is also important to note that some multiple risk youth in the current sample also evidenced a source of strength that has typically been ignored in research with rural and minority youth. For example, Tough girls had above average academics and Social girls were low on aggression. Identifying and recognizing this could be useful. At the least, these strengths should be monitored to ensure they are maintained as such and, if possible, these should be augmented because they may serve an additional moderating function. Educators should also be aware that changing a multiple risk configuration may also require a

coordination of services in and outside of school (Farmer, 2000b). Thus, it is likely that educators will need to work with other personnel, such as school social workers and psychologists, who may have additional training for dealing with these issues and accessing other community resources. Finally, attending to individuals' risk configuration and the interrelation of risk factors indicates that prevention efforts will likely need to be adaptive (Collins, Murphy, & Bierman, 2004; Farmer, 2000b). Such programs (i.e., *adaptive interventions*) modify components and dosages for individuals' to ensure that these are responsive to their unique and changing needs.

Implications of Protective Effects

Results from the current investigation suggest that educators and prevention efforts should strive to sustain or improve the sources of protection evident in the current investigation because these predicted lower subsequent aggression. Specifically, steps to improve or sustain students' involvement in school activities or level of school bonding should be undertaken. Consequently, a key question is, "What can educators do to increase and sustain students' participation in school activities and school bonding?" This study did not directly examine how participation in school activities and students' connection to school are initiated, sustained, or improved. However, leading theories of and research on student engagement incorporate the protective factors examined in this study. Thus, these theories and related research can provide some guidance.

The Participation Identification Model (Finn, 1989) and the Social Development Model (SDM) (Catalano & Hawkins, 1996; Hawkins & Weis, 1985) are leading perspectives guiding research on key indices of school engagement (i.e., identification with and bonding to school). These theories collectively indicate that if students are provided the opportunity to

participate in school activities, have the skills to participate, are provided the support or instruction needed to participate, and then are subsequently rewarded for or perform successfully when participating then bonding to or identification with school will increase. The increase in students' emotional engagement in school in turn leads to more opportunities for and actual participation in school activities. Furthermore, the Social Development Model maintains that as school bonding improves aggressive or other problematic behaviors are suppressed to prevent possible exclusion from participating in school (Catalano & Hawkins, 1996; Hawkins & Weis, 1985).

The Self-Systems Processes Theory of Motivation (Connell, 1990; Connell & Wellborn, 1991) is another leading theory on student engagement that provides several additional important considerations. This theory contends that school contexts which provide a sense of structure (i.e., clear expectations and consistent consequences), involvement (i.e., emotional and instrumental support), and autonomy support (i.e., opportunity for choosing to participate in and be involved with desired aspects of the social context) will meet students' needs for competence (i.e., the belief or perception that one knows how and is able to do what he/she needs to), autonomy (i.e., the belief or perception that one is doing something for his/her own personal or intrinsic as opposed to extrinsic reasons), and relatedness (i.e., the belief or perception that one is emotionally connected to and/or secure with others) (Connell, 1990; Connell & Wellborn, 1991). When these needs are met, students will behaviorally, emotionally, and/or cognitively engage in the activities of school.

Educational Implications Regarding School Activities. Several specific factors can be derived from these theories and relevant research pertaining to school activities and school bonding that likely need to be considered. First, these models converge on the importance of

providing students the opportunity to participate in school activities. However, several issues may lead to inequalities in the opportunity for students to participate (Mahoney & Cairns, 1997). For example, participation in some activities may require a certain expertise or acceptance by those who selectively control access to the activity. School policies may limit participation due to academics or family socioeconomic conditions may influence the activities students choose. The reader may recall that Social Development Model indicates a key mechanism reducing aggression and other problematic behaviors is individuals' suppression of these behaviors to prevent exclusion from participating in school to which they are bonded (Catalano & Hawkins, 1996; Hawkins & Weis, 1985). Thus, it is imperative that educators attempt to identify and, if possible, remove factors that may be limiting students' access to the potential protective effects stemming from participation in school activities.

Second, the options or opportunities that students could choose from should be school activities that are valued (i.e., provide autonomy support to meet need for autonomy), that clearly communicate what is expected or is successful participation in that activity (i.e., provide a sense of structure to meet need for competence), and ensure that staff and students in the activity accept and respect each other (i.e., provide a sense of involvement to meet need for relatedness) (Connell, 1990; Connell & Wellborn, 1991). Third, educators should ensure that students have the skills and are provided the necessary support or instruction to have a successful experience in and be rewarded for their involvement in the activity (Catalano & Hawkins, 1996; Finn, 1989; Hawkins & Weis, 1985).

However, educators and developers of prevention programs should be aware that not all activities may be beneficial. There is evidence suggesting involvement in extracurricular

activities can, at times, actually lead to increases in various problematic behaviors. Specifically, some research suggests that involvement in too many activities may be related to poor outcomes (e.g., Marsh, 1992; Powell, Peet, & Peet, 2002). In addition, certain activities or activity profiles may be related to higher aggressive or other problematic behavior. For example, Mahoney and Stattin (2000) showed that participation in unstructured out-of-school activities predicted higher problematic behavior (e.g., stealing, fighting, skipping school) while involvement in structured out-of-school activities predicted lower rates of these behaviors. Bartko and Eccles (2003) used cluster analytic procedures to identify profiles of activity involvement. These researchers found that adolescents who were highly involved in a variety of organized activities had a higher GPA but those with a high degree of involvement in athletic activities had higher problematic behavior.

Another issue educators and prevention researchers need to be cognizant of is the potential role peer relations within school activities may have in determining whether such involvement is beneficial or harmful. Peers can have a potent influence on the development and maintenance of aggressive and other problematic behavior by, for example, modeling and reinforcing such behavior (Farmer, 2000a). The likelihood of this occurring can be substantially increased when several high risk youth are involved in the same activity together and the activity is not structured (Dishion, McCord, & Poulin, 1999). Collectively, these issues suggest that students should not be involved in too many activities, the activities they are involved in should be structured and organized, and the activity is not solely comprised of high risk youth. As the reader may recall, the Self-Systems Processes Theory of Motivation (Connell, 1990; Connell & Wellborn, 1991) also indicates that providing a sense of structure is essential for improving student engagement. Thus, meeting this need may not

only improve engagement but ensure that participation in the activity does not inadvertently lead to increases in aggression.

Educational Practices to Increase School Bonding. Some specific classroom and instructional practices have been found to improve students' bonding to school. Furthermore, Hawkins and colleagues demonstrated that the resultant increases in school bonding not only reduced misconduct but also improved achievement (Hawkins & Lam, 1987; Hawkins et al., 1988). Perhaps more important is that these effects were found within the most powerful research design, a randomized experiment. In addition, these classroom practices were implemented as an alternative to special education or remedial programs (Hawkins & Lam, 1987; Hawkins et al., 1988) and differences between treatment and control groups were still apparent when participants were in their twenties (Lonczak, Abbott, Hawkins, Kosterman, & Catalano, 2002). Thus, these could be practical, empowering, and relevant for educators in the current accountability and inclusion eras as well.

These educational practices include proactive classroom management, interactive teaching, and cooperative learning (Hawkins & Lam, 1987; Hawkins et al., 1988). Proactive classroom management involves the establishment and use of class routines and clear expectations, methods for handling minor disruptions with minimal interruption of learning activities, and verbal praise that included specifying the desired behavior. Interactive teaching consists of students' mastery of clearly specified learning objectives and grading practices evaluating students' improvement over their own past performance rather than in comparison to other students. Interactive teaching also encompasses frequent monitoring of student comprehension and providing modeling or remediation as needed. Finally, cooperative learning followed the guidelines that are familiar to many teachers and have been

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developed by Slavin and colleagues (Slavin, 1980; Slavin & Karweit, 1984; Slavin, Madden, & Leavey, 1984).

Considerations for Prevention Efforts in Impoverished Rural Settings

Some circumstances and challenges that may be unique to impoverished rural schools and communities will likely require consideration for the development of prevention efforts. The financial difficulties apparent within some rural schools and the limited access to alternative funding sources restrict the ability of such schools to provide a variety and high quality of activities (Beeson & Strange, 2003; Howley, 2003; Khattri, Riley, & Kane, 1997; Save the Children, 2002). The geographic distances in rural areas make providing the transportation needed for involvement in some school activities difficult. This separation also often leads to isolation from other communities or schools thereby limiting the possibility for pooling resources between rural communities and schools (Khattri et al., 1997).

These economic conditions can also affect the prospects for school staff to effectively implement prevention programs in several respects. A correlate of limited funds is that the quality and experience of staff and teachers is often lower in rural schools (Khattri et al., 1997). Clearly, this inexperience may hinder efforts to effectively target and reduce risks or develop the types of relationships and provide activities that could serve protective functions. Thus, some assessment of the skills of teachers and school staff who will potentially be implementing a prevention program may be needed. Depending on the results of this preliminary evaluation, teacher and school staff training can be tailored to meet their needs. Prevention researchers working in rural schools have also indicated that low teacher and school personnel commitment have reduced the implementation and effectiveness of prevention programs (Farrell, Valois, Meyer, & Tidwell, 2003). Consequently, assessing the

level of and taking necessary steps to ensure that teachers and staff are committed to the program should be undertaken.

Despite these potential challenges, some research has found that prevention programs in rural schools can be effective. Specifically, rural teachers have effectively participated in and delivered lessons for substance abuse prevention programs (e.g., Spoth et al., 2002; Vicary et al., 2004). In addition, school-based prevention programs have been shown to be effective in economically disadvantaged rural schools (Vicary et al., 2004). Furthermore, the teacher-delivered prevention curriculum had largest impact on adolescent girls with multiple risks and this was maintained for two years. Some specific factors have been identified that can increase the use of prevention programs in rural schools. These factors may also help the developers of prevention programs avoid problems stemming from low commitment. In particular, extensive training and the use of intervention manuals and materials that ease implementation have been found to improve program implementation with rural teachers (Spoth et al., 2002).

Conclusion

Educators have argued that the resilience perspective could provide a powerful framework to guide school-based prevention efforts (Condly, 2006; Dent & Cameron, 2003; Miller, Brehm, & Whitehouse, 1998). Toward that end, substantial progress applicable to prevention programs has recently been made in the identification of risk and protective factors and developmental pathways (Greenberg, 2004). Yet, little work has clarified sources of protection for aggression (Herrenkohl et al., 2003; National Center for Injury Prevention and Control, 2002). The current study broadens the foundation for school prevention as both risk and protective factors that may exacerbate and suppress the development of aggression

for rural African American youth were identified. However, the results of this study do not provide unequivocal evidence for causal effects or indicate whether these findings apply to other populations and important educational outcomes.

Despite the limitations, the findings from this investigation coupled with developmental theory and the resilience perspective guiding it have important implications for the prevention of aggression for rural students in impoverished communities. The application of such information in schools may prove fruitful but it should be approached with some cautions in mind (Pianta & Walsh, 1998). It is likely that educators will not be able to directly reduce or enhance many other risk and protective factors outside of school. However, implementing programs within schools could spillover and moderate the impact of risk on behavioral development both in and outside of school (Vicary et al., 2004). Though some interventions have been found to impact behavior, research has rarely examined the effects of most prevention programs (Greenberg, 2004). Of those tested relatively few have been successful or evaluated across diverse populations and settings (Greenberg, 2004; Pianta & Walsh, 1998). Thus, substantially more work is needed to develop and determine the effects of prevention programs based on foundational work such as in this study.

Educational psychologists may be particularly well-suited to facilitate schools' use of the resilience concept to promote the positive development of vulnerable students (Dent & Cameron, 2003). In addition, collaboration between and active participation from researchers and educators may be critical to the development and implementation of effective programs that are also feasible in the accountability era (Boxer et al., 2006; Greenberg, 2004; Spoth et al., 2002). This study suggests that schools should seek to identify youth with multiple risks as early as possible. Prevention efforts should then attempt to use empirically-supported

interventions to reduce these risks as well as bolster sources of protection. Finally, these

programs need to be comprehensive, account for the interrelatedness of multiple risk factors,

adapt to the unique and changing needs of individual students, and be responsive to the

unique circumstances of rural settings.

Table 1

Constructs and Measures in Study

Construct	Measure	Source	Spring 6th	Spring 7th	Spring 8th	Spring 9th
Early adjustment						
Aggression	ICS-T	teacher	X			
Popularity	ICS-T	teacher	X			
Academics	ICS-T	teacher	X			
Validation measures						
Aggression	ICS-S	self	X			
Popularity	ICS-S	self	X			
Academics	ICS-S	self	X			
School achievement	Grades	records		X		
Protective factors						
School activities	EIS	self		X	X	
Church activities	EIS	self		X	X	
School bonding	QSL	self		X	X	
Outcome						
Aggression	Peer assessment	peers				X

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Table 2

Correlation Matrix and Descriptive Statistics in Analyses

Examining Nature of Risk for Peer-assessed Aggression (n = 386)

Variable	1.	2.	3.	4.	5.
1. Peer-assessed aggression					
2. Gender (boy)	.02				
3. ICS-T aggression	.20***	.19***			
4. ICS-T academics	-.14**	-.19***	-.25***		
5. ICS-T popularity	.06	-.03	-.26***	.26***	
M	5.09	.44	3.01	4.51	4.92
SD	8.69	.50	1.57	1.63	1.13
Skewness	2.50	—	.36	-.26	.13
Kurtosis	6.36	—	-.79	-.46	-.68

Note. Standard error for measures of skewness and kurtosis was

.124 and .248, respectively.

$^{†}p < .10.$ $^{*}p < .05.$ $^{**}p < .01.$ $^{***}p < .001.$

Table 3

Results from Multiple Regression Analysis Examining Nature of Risk and

Strengths for Peer-Assessed Aggression (n = 386)

Variable	Block 1	Block 2	Block 3
Gender (boy)	.02	-.05	-.05
Aggression		.21***	.19*
Academics		-.13*	-.15*
Popularity		.14**	.16**
Gender x Aggression			.03
Gender x Academics			.02
Gender x Popularity			-.03
R^2	< .001	.07	.07
ΔR^2	< .001	.07***	.001

Note. Interaction terms involve centered ICS-T factor scores.

†$p < .10.$ *$p < .05.$ **$p < .01.$ ***$p < .001.$

Table 4

Results of Logistic Regression Analyses Examining Nature of Risk and Strengths for

Aggressiveness (n = 386)

Variable	Block 1		Block 2		Block 3	
	B	*SE*	*B*	*SE*	*B*	*SE*
Gender (boy)	.10	.36	-.42	.40	-.53	.50
Aggression			.37**	.13	.34†	.20
Academics			-.28*	.12	-.32†	.17
Popularity			.48**	.17	.61*	.25
Gender x Aggression					.25	.28
Gender x Academics					.02	.29
Gender x Popularity					-.49	.43
R^2_{CS}	< .001		.05		.06	
R^2_{N}	< .001		.11		.12	
Block χ^2	.08		20.57***		1.25	

Note. Interaction terms involve centered ICS-T factor scores.

$^{†}p < .10.$ $^{*}p < .05.$ $^{**}p < .01.$ $^{***}p < .001.$

Table 5

Means on ICS-T Factors and Validation Measures by Early Adjustment Configurations for Girls

| | Early adjustment configurations | | | | | | |
| | Low risk | | | High risk | | | |
Variable	Model	Aggressive	Disengaged	Social	Tough	Troubled	F
Configuration variables							
ICS-T aggression	$-.92(.33)_1$	$.67(.51)_2$	$-.85(.39)_1$	$-.80(.43)_1$	$.51(.46)_2$	$1.07(.68)$	140.34^{***}
ICS-T academics	$.90(.45)_1$	$.63(.40)_1$	$-.62(1.17)_2$	$-.70(.48)_2$	$.48(.81)_1$	$-.67(.66)_2$	42.05^{***}
ICS-T popularity	$.82(.62)_1$	$-.67(.42)_2$	$-.99(.52)_2$	$1.12(.46)_1$	$1.01(.40)_1$	$-.71(.45)_2$	139.16^{***}
Validation measures							
ICS-S aggression	$-.51(.92)_1$	$.11(.99)_{12}$	$-.13(1.03)_{12}$	$-.14(.85)_{12}$	$.18(.84)_2$	$.39(.99)_2$	5.02^{***}
ICS-S academics	$.15(.80)$	$.03(.98)$	$-.33(1.22)$	$-.12(1.07)$	$.32(.85)$	$-.07(1.00)$	1.73
ICS-S popularity	$.20(.84)_1$	$.12(1.16)_{12}$	$-.64(.99)_2$	$-.18(.80)_{12}$	$.47(.94)_1$	$-.05(1.01)_{12}$	4.54^{**}
Achievement in 7th	$.64(.89)_1$	$.05(.78)_{12}$	$-.35(.98)_2$	$-.20(.89)_2$	$.34(.83)_1$	$-.50(.96)_2$	9.81^{***}
Number of strengths	2	2	2	1	0	0	
Number of risks	1	1	1	2	2	2	
Maximum n (%)	50(21.9)	27(11.8)	39(17.7)	22(9.6)	32(12.9)	58(25.4)	

Note. Means are z-scores. Standard deviation in parentheses. Means in same row that do not share subscripts differ by $p < .05$.

$^{†}p < .10.$ $^{*}p < .05.$ $^{**}p < .01.$ $^{***}p < .001.$

Table 6

Means on ICS-T Factors and Validation Measures by Early Adjustment Configurations for Boys

| | Early adjustment configurations | | | | | |
| | Low risk | Moderate risk | | High risk | | |
Variable	Model	Average	Disengaged	Tough	Troubled	*F*
Configuration variables						
ICS-T aggression	-.82(.49)$_1$	.39(.42)	-95(.47)$_1$	.86(.75)	1.43(.49)	132.57***
ICS-T academics	.98(.67)	.17(.55)	-.65(.70)$_1$	-.97(.73)$_1$	-.57(.92)$_1$	53.57***
ICS-T popularity	.59(.88)$_1$	-.37(.55)$_2$	-.46(.80)$_2$	1.00(.61)$_1$	-1.11(.80)	40.18***
Validation measures						
ICS-S aggression	-.36(1.00)$_1$	-.01(1.07)$_{12}$	.28(.66)$_{12}$	.40(1.06)$_2$	.25(.79)$_{12}$	3.18*
ICS-S academics	.20(.97)	.24(.94)	-.49(.99)	-.45(1.01)	-.002(.94)	3.53**
ICS-S popularity	.19(1.08)	-.01(.97)	-.28(.90)	.16(1.09)	-.39(.73)	1.47
Achievement in 7th	.65(.90)	.05(.89)$_1$	-.25(.80)$_1$	-.63(.83)$_1$	-.56(1.13)$_1$	9.95***
Number of strengths	2	0	1	0	1	
Number of risks	1	0	1	3	2	
Maximum *n*(%)	54(28.3)	53(27.7)	34(17.8)	28(14.7)	22(11.5)	

Note. Means are z-scores. Standard deviation in parentheses. Means in same row that do not share subscripts differ by *p* < .05.

†*p* < .10. *p* < .05. **p* < .01. ***p* < .001.

Table 7

Correlation Matrix and Descriptive Statistics for Final Data in

Regression Analyses on Peer-assessed Aggression for Girls (n = 199)

Variable	1.	2.	3.	4.	5.
1. Aggression					
2. High risk	.17[*]				
3. School activities	-.11	.002			
4. School bonding	-.19[**]	-.05	.07		
5. Church activities	-.05	.04	.16[*]	.21[**]	
M	4.95	.48	1.09	.55	.89
SD	7.36	.50	.64	.19	.66
Skewness	1.68	—	.22	.06	.20
Kurtosis	1.95	—	-.25	-.74	-.99

Note. Standard error for measures of skewness and kurtosis was .17

and .34, respectively.

[†]$p < .10.$ [*]$p < .05.$ [**]$p < .01.$ [***]$p < .001.$

Table 8

Results of Multiple Regression Analyses Examining Function of Proposed

Protective Factors on Peer-Assessed Aggression for Girls

Variable	Block 1	Block 2	Block 3
High risk	.17*	17*	.17*
School activities		-.11	-.09
School activities x high risk			-.02
R^2	.03	.04	.04
ΔR^2	.03*	.01	< .001
High risk	.17*	.16*	.16*
School bonding		-.18**	-.18†
School bonding x high risk			-.01
R^2	.03	.06	.06
ΔR^2	.03*	.03**	< .001
High risk	.17*	.17*	.17*
Church activities		-.05	-.05
Church activities x high risk			-.01
R^2	.03	.03	.03
ΔR^2	.03*	.003	< .001

Notes. Coefficients are standardized regression weights. Interaction terms

involve centered ICS-T factor scores.

$^\dagger p < .10.$ $^* p < .05.$ $^{**} p < .01.$ $^{***} p < .001.$

Table 9

Correlation Matrix and Descriptive Statistics for Final Data in Regression

Analyses on Peer-assessed Aggression for Boys (n = 136)

Variable	1.	2.	3.	4.	5.	6.
1. Aggression						
2. High risk	.23**					
3. Moderate risk	-.03	-.53***				
4. School activities	-.21*	-.09	-.11			
5. School bonding	-.02	-.12	-.03	.09		
6. Church activities	-.06	-.14	.25**	.09	.12	
M	5.54	.26	.44	.81	.52	.45
SD	9.56	.44	.50	.66	.22	.56
Skewness	2.39	—	—	.42	.18	1.10
Kurtosis	1.95	—	—	-.68	-.87	.46

Note. Standard error for measures of skewness and kurtosis was .21 and

.41, respectively.

[†]$p < .10.$ [*]$p < .05.$ [**]$p < .01.$ [***]$p < .001.$

Table 10

Results of Multiple Regression Analyses Examining Function of Proposed

Protective Factors on Peer-Assessed Aggression for Boys (n = 136)

Variable	Block 1	Block 2	Block 3
High risk	$.29^{**}$	$.26^{*}$	$.27^{*}$
Moderate risk	.12	.08	.11
School activities		$-.18^{*}$	-.03
School activities x high risk			$-.19^{\dagger}$
School activities x moderate risk			-.08
R^2	.06	.09	.11
ΔR^2	$.06^{*}$	$.03^{*}$	.02
High risk	$.29^{**}$	$.30^{**}$	$.32^{**}$
Moderate risk	.12	.13	.12
School bonding		.02	-.01
School bonding x high risk			.14
School bonding x moderate risk			-.07
R^2	.06	.06	.09
ΔR^2	$.06^{*}$	< .001	.02
High risk	$.29^{**}$	$.29^{**}$	$.30^{**}$
Moderate risk	.12	.14	.14
Church activities		-.05	-.10
Church activities x high risk			.02
Church activities x moderate risk			.05
R^2	.06	.07	.07
ΔR^2	$.06^{*}$	< .01	.001

Note. Interaction terms involve centered ICS-T factor scores.

$^{\dagger}p < .10.$ $^{*}p < .05.$ $^{**}p < .01.$ $^{***}p < .001.$

Table 11

Results of Logistic Regression Analyses Examining Function of Proposed Protective Factors

on Peer-Assessed Aggression for Girls (n = 199)

Variable	Block 1		Block 2		Block 3	
	B	*SE*	*B*	*SE*	*B*	*SE*
High risk	.70[†]	.37	.71[†]	.37	.78[*]	.38
School activities			-.46	.30	-.71	.46
School activities x high risk					.45	.61
R^2_{CS}	.02		.03		.03	
R^2_{N}	.03		.05		.05	
Block χ^2	3.72[†]		2.48		.57	
High risk	.70[†]	.37	.67[†]	.37	.78[†]	.41
School bonding			-2.93[**]	1.03	-4.06[*]	1.76
School bonding x high risk					1.80	2.17
R^2_{CS}	.02		.06		.06	
R^2_{N}	.03		.10		.10	
Block χ^2	3.72[†]		8.79[**]		.71	
High risk	.70[†]	.37	.72[†]	.37	.75[*]	.38
Church activities			-.35	.28	-.48	.45
Church activities x high risk					.22	.57
R^2_{CS}	.02		.03		.03	
R^2_{N}	.03		.04		.04	
Block χ^2	3.72[†]		1.63		.14	

Note. Interaction terms involve centered ICS-T factor scores.

[†]$p < .10.$ [*]$p < .05.$ [**]$p < .01.$ [***]$p < .001.$

Table 12

Results of Logistic Regression Analyses Examining Function of Proposed Protective

Factors on Peer-Assessed Aggression for Boys (n = 136)

Variable	Block 1		Block 2		Block 3	
	B	SE	B	SE	B	SE
High risk	1.85*	.82	1.62†	.84	1.51†	.87
Moderate risk	.75	.84	.51	.86	.44	.90
School activities			-1.11*	.52	-.63	1.12
School activities x high risk					-.68	1.37
School activities x moderate risk					-.51	1.42
R^2_{CS}	.05		.09		.09	
R^2_{N}	.10		.17		.17	
Block χ^2	7.10*		5.48*		.24	
High risk	1.85*	.82	1.86*	.83	1.94*	.87
Moderate risk	.75	.84	.76	.85	.72	.90
School bonding			.19	1.28	.77	2.97
School bonding x high risk					.62	3.50
School bonding x moderate risk					-2.88	3.83
R^2_{CS}	.05		.05		.06	
R^2_{N}	.10		.10		.12	
Block χ^2	7.10*		.02		1.43	
High risk	1.85*	.82	1.85*	.82	1.93*	.90
Moderate risk	.75	.84	.83	.85	.87	.92
Church activities			-.31	.53	-.50	1.92
Church activities x high risk					.59	2.09
Church activities x moderate risk					-.07	2.07
R^2_{CS}	.05		.05		.06	
R^2_{N}	.10		.10		.11	
Block χ^2	7.10*		.36		.36	

Note. Interaction terms involve centered ICS-T factor scores.

†$p < .10.$ *$p < .05.$ **$p < .01.$ ***$p < .001.$

Table 13

Differences Between Participants Dropped and Included in Analyses on
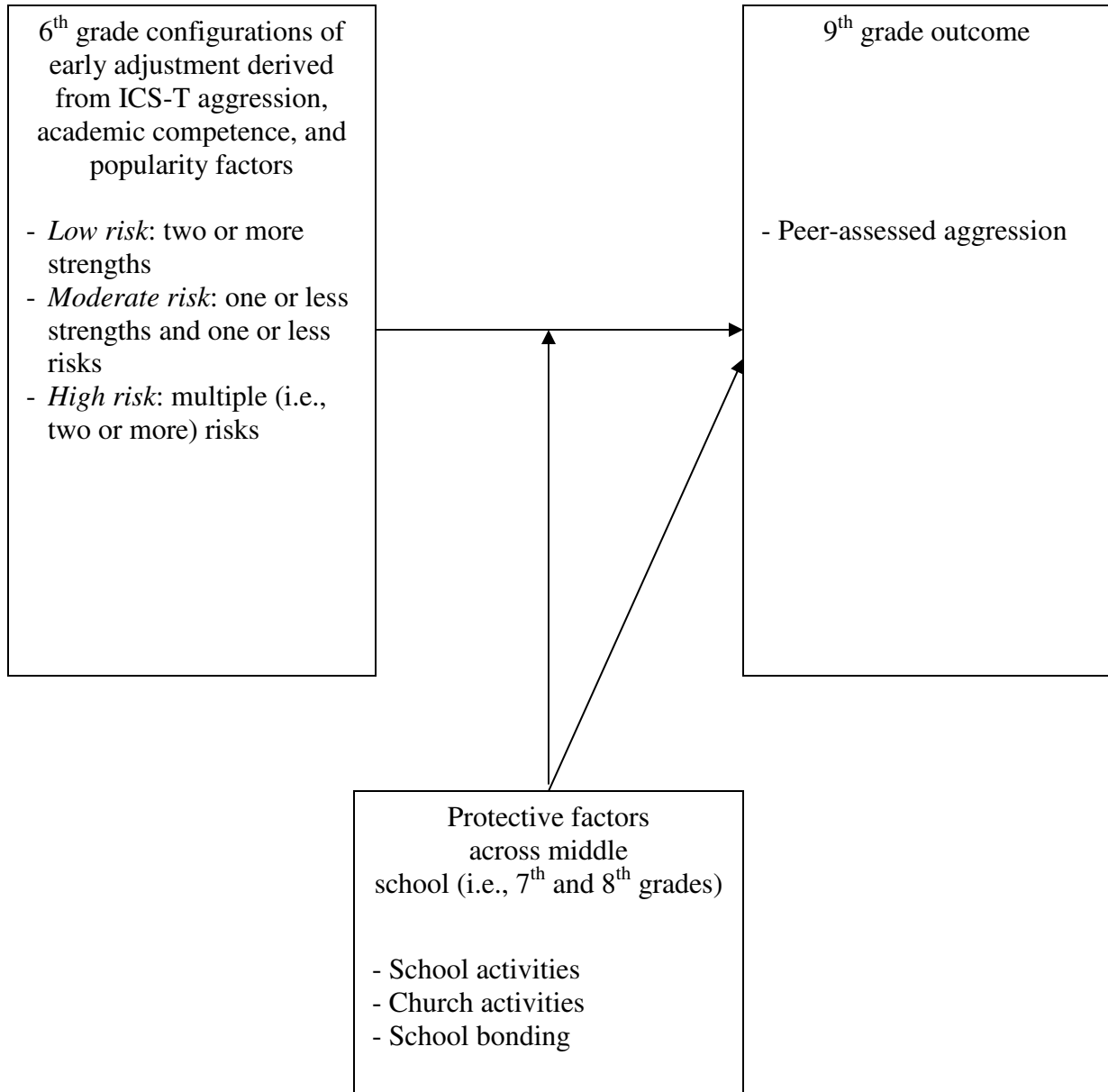
Peer-Assessed Aggression

Measure	Dropped		Included		
	n	*M(SD)*	*n*	*M(SD)*	*t*
Girls					
ICS-T aggression	29	.38(1.14)	199	-.05(.96)	2.19[*]
ICS-T academic	31	.02(.83)	199	-.003(1.03)	.10
ICS-T popularity	31	-.05(1.02)	199	.008(1.00)	-.30
ICS-S aggression	33	.007(1.04)	182	-.001(1.00)	.04
ICS-S academic	33	-.006(1.05)	184	.001(.99)	-.04
ICS-S popularity	32	.12(1.06)	171	-.02(.99)	.77
School achievement	14	.08(.89)	198	-.006(1.01)	.33
Peer-assessed aggression	31	-.26(.54)	199	.04(1.05)	1.57
Boys					
ICS-T aggression	55	.02(.93)	136	-.01(1.03)	.16
ICS-T academic	55	-.07(1.07)	136	.03(.97)	-.66
ICS-T popularity	55	-.24(1.07)	136	.10(.96)	-2.12[*]
ICS-S aggression	31	.08(1.07)	113	-.02(.98)	.52
ICS-S academic	32	-.24(1.07)	114	.07(.97)	-1.57
ICS-S popularity	27	-.04(1.02)	107	.01(1.00)	-.24
School achievement	9	-.08(1.32)	132	.01(.98)	-.24
Peer-assessed aggression	36	-.18(.58)	136	.05(1.08)	1.24

Note. Means are z-scores. Standard deviations in parentheses.

[†]*p* < .10. [*]*p* < .05. [**]*p* < .01. [***]*p* < .001.

Figure 1

Conceptual Model of Study

| 6th grade configurations of early adjustment derived from ICS-T aggression, academic competence, and popularity factors

 - *Low risk*: two or more strengths
 - *Moderate risk*: one or less strengths and one or less risks
 - *High risk*: multiple (i.e., two or more) risks |

9th grade outcome

- Peer-assessed aggression

Protective factors across middle school (i.e., 7th and 8th grades)

- School activities
- Church activities
- School bonding

INTERPERSONAL COMPETENCE SCALE

Interpersonal Inventory

Left	Scale	Right
NEVER ARGUES	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	ALWAYS ARGUES
ALWAYS GETS IN TROUBLE AT SCHOOL	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	NEVER GETS IN TROUBLE AT SCHOOL
ALWAYS SMILES	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	NEVER SMILES
NOT POPULAR WITH BOYS	☐—☐—☐—☐—☐—☐—☐ (So-So)	VERY POPULAR WITH BOYS
NOT SHY	☐—☐—☐—☐—☐—☐—☐ (So-So)	VERY SHY
VERY GOOD AT SPORTS	☐—☐—☐—☐—☐—☐—☐ (So-So)	NOT GOOD AT SPORTS
VERY GOOD LOOKING	☐—☐—☐—☐—☐—☐—☐ (So-So)	NOT GOOD LOOKING
VERY GOOD AT SPELLING	☐—☐—☐—☐—☐—☐—☐ (So-So)	NOT GOOD AT SPELLING
ALWAYS GETS IN A FIGHT	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	NEVER GETS IN A FIGHT
NEVER SAD	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	ALWAYS SAD
NOT GOOD AT MATH	☐—☐—☐—☐—☐—☐—☐ (So-So)	VERY GOOD AT MATH
VERY POPULAR WITH GIRLS	☐—☐—☐—☐—☐—☐—☐ (So-So)	NOT POPULAR WITH GIRLS
LOTS OF FRIENDS	☐—☐—☐—☐—☐—☐—☐ (Some Friends)	NO FRIENDS
NEVER GETS HIS/HER WAY	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	ALWAYS GETS HIS/HER WAY
NEVER WORRIES	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	ALWAYS WORRIES
WINS A LOT	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	NEVER WINS
NEVER FRIENDLY	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	ALWAYS FRIENDLY
CRIES A LOT	☐—☐—☐—☐—☐—☐—☐ (Sometimes)	NEVER CRIES

** Please make sure to only mark one box per item **

PEER BEHAVIORAL ASSESSMENTS

For the following, name the three kids in your class who best fit the description.

1) Cooperative. "Here is someone who is really good to have as part of your group, because this person is agreeable and cooperative-pitches in, shares, and gives everyone a turn."

   _____   _____   _____

2) Disruptive. "This person has a way of upsetting everything when he or she gets into a group – doesn't share and tries to get everyone to do things their way."

   _____   _____   _____

3) Acts Shy. "This person acts very shy with other kids. It's hard to get to know this person."

   _____   _____   _____

4) Starts Fights. "This person starts fights. This person says mean things to other kids or pushes them, or hits them."

   _____   _____   _____

5) Seeks Help. "This person is always looking for help, asks for help even before trying very hard."

   _____   _____   _____

6) Leader. "This person gets chosen by others as the leader. Other people like to have this person in charge."

   _____   _____   _____

7) Athletic. "This person is very good at many outdoor games and sports."

   _____   _____   _____

8) Gets in trouble. "This person doesn't follow the rules, doesn't pay attention, and talks back to the teacher."

   _____   _____   _____

9) Good student. "This person makes good grades, usually knows the right answer, and works hard in class."

   _____   _____   _____

Do not name more than three persons for each question.

Remember, you don't have to fill in all the lines.

10) Cool. "This person is really cool. Just about everybody in school knows this person."

_____   _____   _____

11) Sad. "This person often seems sad."

_____   _____   _____

12) Starts rumors. "This person gossips and says things about others. This person is good at causing people to get mad at each other."

_____   _____   _____

13) Popular. "Some kids are very popular with their peers. That is, many classmates like to play with them or do things with them."

_____   _____   _____

14) Picked on. "This person is picked on by others."

_____   _____   _____

15) Friendly. "This person is usually friendly to others."

_____   _____   _____

16) Bully. "This person bullies others. This person is always hurting or picking on others."

_____   _____   _____

17) Gets their way. "Other kids do what this person wants. This person always gets their way."

_____   _____   _____

APPENDIX C:

EXTRACURRICULAR INVOLVMENT SURVEY

Some students are involved in school activities and others are not. What about you?
(A) In the left column, please circle all the activities in which you are involved.
(B) In the middle column, __write the names of the activities in which you are involved.
(C) In the right column, _____ check where you participate in the activity (such as school, church, community).

(A) ACTIVITY (Circle)	(B) SPECIFIC ACTIVITY?	(C) WHERE?
STUDENT GOVERNMENT	_____	_____ School _____ Church _____ Community
MUSIC	_____	_____ School _____ Church _____ Community
RELIGIOUS CLUBS	_____	_____ School _____ Church _____ Community
ACADEMIC CLUBS	_____	_____ School _____ Church _____ Community
HOBBY CLUBS	_____	_____ School _____ Church _____ Community
VOCATIONAL CLUBS	_____	_____ School _____ Church _____ Community
SPORTS	_____	_____ School _____ Church _____ Community

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APPENDIX D:

QUALITY OF SCHOOL LIFE

Circle T or F if the following statements are TRUE or FALSE for YOU.

T	F	In class, I often count the minutes till it ends.
T	F	I wish that I could have the same teachers next year.
T	F	Most of the time I do not want to go to school.
T	F	I hardly ever do anything very exciting in class.
T	F	I am very happy when I am in school.
T	F	Most of my teachers really listen to what I have to say.
T	F	I daydream a lot in class.
T	F	I like school very much.
T	F	Teachers here have a way with students that makes me like them.
T	F	Most of the topics we study in class can't end soon enough to suit me.

Check one (√) answer that tells best what YOU think.

This term I am eager to get to...

_____	1.	all of my classes.
_____	2.	most of my classes.
_____	3.	about half of my classes.
_____	4.	one or two of my classes.
_____	5.	none of my classes.

In my classes I get so interested in an assignment or project that I don't want to stop work.

_____	1.	Never.
_____	2.	Hardly ever.
_____	3.	Quite often.
_____	4.	Every day.

The school and I are like...

_____	1.	good friends.
_____	2.	friends.
_____	3.	distant relatives.
_____	4.	strangers.
_____	5.	enemies.

The work I do in most of my classes is...

_____	1.	not at all important to me.
_____	2.	not too important to me.
_____	3.	pretty important to me.
_____	4.	very important to me.

This term my teachers and I are...

_____	1.	on the same wavelength.
_____	2.	on the same planet.
_____	3.	somewhere in the same solar system.
_____	4.	in two different worlds.

The things I get to work on in most of my classes are...

_____	1.	great stuff - really interesting to me.
_____	2.	good stuff - pretty interesting to me.
_____	3.	OK - school work is school work.
_____	4.	dull stuff - not very interesting to me.
_____	5.	trash - a total loss for me.

If you could choose to take any courses at all, how many of your present courses would you take?

_____	1.	All of them.
_____	2.	More than half.
_____	3.	About half.
_____	4.	Fewer than half.
_____	5.	None of them.

I enjoy the work I do in class.

_____	1.	Always.
_____	2.	Often.
_____	3.	Sometimes.
_____	4.	Seldom.
_____	5.	Never.

Work in class is just busy and a waste of time.

_____	1.	Always.
_____	2.	Often.
_____	3.	Sometimes.
_____	4.	Seldom.
_____	5.	Never.

I feel I can go to my teacher with the things that are on my mind.

_____	1.	Always.
_____	2.	Often.
_____	3.	Sometimes.
_____	4.	Seldom.
_____	5.	Never.

School work is dull and boring for me.

_____	1.	Always.
_____	2.	Often.
_____	3.	Sometimes.
_____	4.	Seldom.
_____	5.	Never.

I will graduate from high school.

_____	1.	Strongly Agree.
_____	2.	Agree.
_____	3.	Disagree.
_____	4.	Strongly Disagree.

My grades have recently improved at school.

_____	1.	Strongly Agree.
_____	2.	Agree.
_____	3.	Disagree.
_____	4.	Strongly Disagree.

I enjoy school.

_____	1.	Strongly Agree.
_____	2.	Agree.
_____	3.	Disagree.
_____	4.	Strongly Disagree.

I skip (cut) the entire school day.

_____	1.	Strongly Agree.
_____	2.	Agree.
_____	3.	Disagree.
_____	4.	Strongly Disagree.

School is a waste of my time.

_____	1.	Strongly Agree.
_____	2.	Agree.
_____	3.	Disagree.
_____	4.	Strongly Disagree.

My teachers understand me.

_____	1.	Strongly Agree.
_____	2.	Agree.
_____	3.	Disagree.
_____	4.	Strongly Disagree.

REFERENCES

Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin, 101*, 213-232.

Adler, P. A., & Adler, P. (1998). *Peer power: Preadolescent culture and identity.* New Brunswick, NJ: Rutgers University Press.

Ahmed, E., & Braithwaite, V. (2004). "What, me ashamed?" Shame management and school bullying. *Journal of Research in Crime and Delinquency, 41*, 269-294.

Albrecht, D. E., Albrecht, C. M., & Albrecht, S. L. (2000). Poverty in non-metropolitan America: Impacts of industrial, employment, and family structure variables. Rural Sociology, 65, 87-103.

Aldenderfer, M. S. & Blashfield, R. K. (1984). *Cluster analysis.* Newbury Park, CA: Sage Publications.

Ayers, C. D., Williams, J. H., Hawkins, J. D., Peterson, P. L., Catalano, R. F., & Abbott, R. D. (1999). Assessing correlates of onset, escalation, deescalation, and desistance of delinquent behavior. *Journal of Quantitative Criminology, 15¸*277-306.

Bachus, G. (1994). Violence is no stranger in rural schools. *School Administrator, 51*, 18-22.

Bailey, K. D. (1994). *Typologies and taxonomies: An introduction to classification techniques.* Los Angeles: Sage Publications.

Barbarin, O. A. (1993). Coping and resilience: Exploring the inner lives of African American children. *Journal of Black Psychology, 19*, 478-492.

Barbarin, O., McCandies, T., Coleman, C., & Atkinson, T. (2004). Ethnicity and culture. In P. Allen-Meares, & M. W. Fraser (Eds.), *Intervention with children and adolescents: An interdisciplinary perspective* (pp. 27-53). Boston: Allyn and Bacon.

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

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

Beeson, E., & Strange, M. (2003). Why Rural Matters 2003: The continuing need for every state to take action on rural education. *Journal of Research in Rural Education, 18*, 3-16.

Bergman, L. R., & Magnusson, D. (1997). A person-oriented approach in research on developmental psychopathology. *Development and Psychopathology, 9*, 291-319.

Borden, L. M., Donnermeyer, J. F., & Scheer, S. D. (2001). The influence of extra-curricular activities and peer influence on substance use. *Adolescent and Family Health*, *2*, 12-19.

Boxer, P., Musher-Eizenman, D., Dubow, E. F., Danner, S., & Heretick, D. M. L. (2006). Assessing teachers' perceptions for school-based aggression prevention programs: Applying a cognitive-ecological framework. *Psychology in the Schools, 43*, 331-344.

Brame, R., Paternoster, R., Mazerolle, P., & Piquero, A. (1998). Testing for the equality of maximum-likelihood regression coefficients between two independent equations. *Journal of Quantitative Criminology, 14*, 245-261.

Brendgen, M., Vitaro, F., Tremblay, R. E., & Lavoie, F. (2001). Reactive and proactive aggression: Predictions to physical violence in different contexts and moderating effects of parental monitoring and caregiving behavior. *Journal of Abnormal Psychology, 29*, 293-304.

Brody, G. H., Dorsey, S., Forehand, R., & Armistead, L. (2002). Unique and protective contributions of parenting and classroom processes to the adjustment of African American children living in single-parent families. *Child Development, 73*, 274-286.

Brody, G. H., & Flor, D. L. (1997). Maternal psychological functioning, family processes, and child adjustment in rural, single-parent, African American families. *Developmental Psychology, 33*, 1000-1011.

Brody, G. H., Flor, D. L., & Gibson, N. M., (1999). Linking maternal efficacy beliefs, developmental goals, parenting practices, and child competence in rural single-parent African American families. *Child Development, 70*, 1197-1208.

Brody, G. H., Kim, S., Murry, V. M., & Brown, A. C. (2004). Protective longitudinal paths linking child competence to behavioral problems among African American siblings. *Child Development, 75*, 455-467.

Brody, G. H., Kim, S., & Murry, V. M. (2003). Longitudinal links between contextual risks, parenting and youth outcomes in rural African American families. *Journal of Black Psychology, 29*, 359-377.

Brody, G. H., Murry, V. M., Kim, S., & Brown, A. C. (2002). Longitudinal pathways to competence and psychological adjustment among African American children living in rural single-parent households. *Child Development, 73*, 1505-1516.

Brody, G. H., Stoneman, Z., & Flor, D. (1996). Parental religiosity, family processes, and youth competence in rural, two-parent African American families. *Developmental Psychology, 32*, 696-706.

Brody, G. H., Stoneman, Z., Flor, D., & McCrary, C. (1994). Religion's role in organizing family relationships: Family process in rural, two-parent African American families. *Journal of Marriage and the Family, 56*, 878-888.

Bukowski, W. M., & Sippola, L. K. (2001). Groups, individuals, and victimization: A view of the peer system. In J. Juvonen, & Graham, S (Eds.), *Peer harassment in school: The plight of the vulnerable and victimized* (pp. 355-377). New York: Guilford Press.

Cadwallader, T. W., Farmer, T. W., Cairns, B. D., Leung, M-C., Clemmer, J. T., Gut, D. M., et al. (2002). The social relations of rural African American early adolescents and proximal impact of the School Engagement Project. *Journal of School Psychology, 40*, 213-237.

Cairns, R. B., & Cairns, B. D. (1994). *Lifelines and risks: Pathways of youth in our time*. New York, NY: Harvester Wheatsheaf.

Cairns, R. B., Cairns, B. D., & Neckerman, H. J. (1989). Early school dropout: Configurations and determinants. *Child Development, 60*, 1437-1452.

Cairns, R. B., Leung, M-C., Buchanan, L., & Cairns, B. D. (1995). Friendships and social networks in childhood and adolescence: Fluidity, reliability, and interrelations. *Child Development, 66*, 1330-1345.

Cairns, R. B., Leung, M-C., Gest, S. D., & Cairns, B. D. (1995). A brief method for assessing social development: Structure, reliability, stability, and developmental validity of the Interpersonal Competence Scale. *Behaviour Research and Therapy, 33*, 725-736.

Cairns, R. B., & Rodkin, P. C. (1998). Phenomena regained: From configurations to pathways. In R. B. Cairns, L. R. Bergman, & J. Kagan (Eds.), *Methods and models for studying the individual* (pp. 245-265). Thousand Oaks, CA: Sage Publications.

Cantrell, V. L., & Prinz, R. J. (1985). Multiple perspectives of rejected, neglected, and accepted children: Relation between sociometric status and behavioral characteristics. *Journal of Consulting and Clinical Psychology, 53*, 884-889.

Cappella, E., & Weinstein, R. S. (2001). Turning around reading achievement: Predictors of high school students' academic resilience. *Journal of Educational Psychology, 93*, 758-771.

Catalano, R., & Hawkins, J. D. (1996). The social development model: A theory of antisocial behavior. In J. D. Hawkins (Ed.), *Delinquency and crime: Current theories* (pp. 149-197). Cambridge, England: Cambridge University Press.

Catterall, J. S. (1998). Risk and resilience in student transitions to high school. *American Journal of Education, 106*, 302-333.

Chen, X., Chen, H., & Kaspar, V. (2001). Group social functioning and individual socioemotional and school adjustment in Chinese children. *Merrill-Palmer Quarterly, 47*, 264-299.

Chenoweth, E., & Galliher, R. V. (2004). Factors influencing college aspirations of rural West Virginia high school students. *Journal of Research in Rural Education, 19*, 1-14.

Choi, Y., Golder, S., Gillmore, M. G., & Morrison, D. M. (2005). Analysis with missing data in social work research. *Journal of Social Service Research, 31*(3), 23-48.

Christian, M. D., & Barbarin, O. A. (2001). Cultural resources and psychological adjustment of African American children: Effects of spirituality and racial attribution. *Journal of Black Psychology, 27*, 43-63.

Cicchetti, D., & Rogosch, F. A. (1997). The role of self-organization in the promotion of resilience in maltreated children. *Development and Psychopathology, 9*, 797-815.

Cillessen, A. H. N., & Mayeux, L. (2004). From censure to reinforcement: Developmental changes in the association between aggression and social status. *Child Development, 75*, 147-163.

Cillessen, A. H. N., & Rose, A. J. (2005). Understanding popularity in the peer system. *Current Directions in Psychological Science, 14*, 102-105.

Clark, R., Anderson, N. B., Clark, V. R., & Williams, D. R. (1999). Racism as a stressor for African Americans: A biopsychosocial model. *American Psychologist, 54*, 805-816.

Cobb, B. K., Cairns, B. D., Miles, M. S., & Cairns, R. B. (1995). A longitudinal study of the role of sociodemographic factors and childhood aggression on adolescent injury and "close calls." *Journal of Adolescent Health, 17*, 381-388.

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 779-862). New York: Wiley.

Coie, J. D., Dodge, K. A., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. *Developmental Psychology, 18*, 557-570.

Collins, L. M. (2006). Analysis of longitudinal data: The integration of theoretical model, temporal design, and statistical model. *Annual Review of Psychology*, *57*, 505-528.

Collins, L. M., Murhpy, S. A., & Bierman, K. L. (2004). A conceptual framework for adaptive preventive interventions. *Prevention Science, 5*, 185-196.

Condly, S. J. (2006). Resilience in children: A review of literature with implications for education. *Urban Education, 41*, 211-236.

Connell, J. P. (1990). Context, self, and action: A motivational analysis of self-system processes across the life span. *The self in transition: Infancy to childhood.* Chicago: The University of Chicago Press.

Connell, J. P., Spencer, M. B., & Aber, J. L. (1994). Educational risk and resilience in African-American youth: Context, self, action, and outcomes in school. *Child Development, 65*, 493-506.

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. Gunnar & A. Sroufe (Eds.), *The Minnesota symposia on child development* (Vol. 23). Hillsdale, NJ: Erlbaum.

Craig, W. M., & Pepler, D. J. (2003). Identifying and targeting risk for involvement in bullying and victimization. *Canadian Journal of Psychiatry, 48*, 577-582.

Crick, N. R., & Werner, N. E. (1998). Response decision processes in relational and overt aggression. *Child Development, 69*, 1630-1639.

Cunningham, P. B., Henggeler, S. W., Limber, S. P., Melton. G. B., & Nation, M. A. (2000). Patterns and correlates of gun ownership among nonmetropolitan and rural middle school students. *Journal of Clinical Child Psychology, 29*, 432-442.

Dahlberg, L. L., & Potter, L. B. (2001). Youth violence: Developmental pathways and prevention challenges. *American Journal of Preventive Medicine, 20*, 3-14.

Darling, N., Caldwell, L. L., & Smith, R. (2005). Participation in school-based extracurricular activities and adolescent adjustment. *Journal of Leisure Research, 37*, 51-76.

Dennis, D., Massie, J. E., Wycoff-Horn, M., Mouzon, L., Pleban, F. T., Monge, E., & Sarvela, P. D. (2002). Weapon carrying among rural Southern Illinois elementary school children. *Journal of Health Care for the Poor and Underserved, 13*, 413-424.

Denny, S., Clark, T. C., Fleming, T., & Wall, M. (2004). Emotional resilience: Risk and protective factors for depression among alternative education students in New Zealand. *American Journal of Orthopsychiatry, 74*, 137-149.

Dent, R. J., & Cameron, R. J. S. (2003). Developing resilience in children who are in public care: The educational psychology persepective. *Educational Psychology in Practice, 19*, 3-19.

Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm: Peer groups and problem behavior. *American Psychologist, 54*, 755-764.

Doll, B., & Lyon, M. A. (1998). Risk and resilience: Implications for the delivery of educational and mental health services in the schools. *School Psychology Review, 27*, 348-363.

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

Eccles, J., & Gootman, J. A. (Eds.). (2002). *Community programs to promote youth development*. Washington D. C.: National Academic Press.

Elinoff, M. J., Chafouleas, S. M., & Sassu, K. A. (2004). Bullying: Considerations for defining and intervening in schools. *Psychology in the Schools, 41*, 887-897.

Ellison, C. G., & Sherkat, D. E. (1995). The "semi-involuntary institution" revisited: Regional variations in church participation among black Americans. *Social Forces, 73*, 1415-1437.

Epstein, J. L., & McPartland, J. M. (1976). The concept and measurement of the quality of school life. *American Educational Research Journal, 13*, 15-30.

Estell, D. B., Cairns, R. B., Farmer, T. W., & Cairns, B. D. (2002). Aggression in inner-city early elementary classrooms: Individual and peer-group configurations. *Merrill-Palmer Quarterly, 48*, 52-76.

Estell, D. B., Farmer, T. W., Cairns, R. B., & Cairns, B. D. (2002). Social relations and academic achievement in inner-city early elementary classrooms. *International Journal of Behavioral Development, 26*, 518-528.

Estell, D. B., Farmer, T. W., Cairns, B. D., & Clemmer, J. T. (2003). Self-report weapon possession in school and patterns of early adolescent adjustment in rural African American youth. *Journal of Clinical Child and Adolescent Psychology, 32*, 442-452.

Evans, G. W., & English, K. (2002). Multiple stressor exposure, psychophysiological stress, and socioemotional adjustment. *Child Development, 73*, 1238-1248.

Farmer, T. W. (2000a). The social dynamics of aggressive and disruptive behavior in school: Implications for behavior consultation. *Journal of Educational and Psychological Consultation, 11*, 299-321.

Farmer, T. W. (2000b). Misconceptions of peer rejection and problem behavior: Understanding aggression in students with mild disabilities. *Remedial and Special Education, 21*, 194-208.

Farmer, T. W., Clemmer, J. T., Leung, M.-C, Goforth, J. B., Thompson, J. H., Keagy, K., et al. (2005). Strength-based assessment of rural African-American early adolescents: Characteristics of students in high and low groups on the Behavioral and Emotional Rating Scale. *Journal of Child and Family Studies*.

Farmer, T. W., Estell, D. B., Bishop, J. L., O'Neal, K. K., & Cairns, B. D. (2003). Rejected bullies or popular leaders? The social relations of aggressive subtypes of rural African American early adolescents. *Developmental Psychology, 39*, 992-1004.

Farmer, T. W., & Farmer, E. M. Z. (2001). Developmental science, systems of care, and prevention of emotional and behavioral problems in youth. *American Journal of Orthopsychiatry, 71*, 171-181.

Farmer, T. W., Leung, M-C., Pearl, R., Rodkin, P., Cadwallader, T. W., & Van Acker, R. (2002). Deviant or diverse peer groups? The peer affiliations of aggressive elementary students. *Journal of Educational Psychology, 94*, 611-620.

Farmer, T. W., Price, L. N., O'Neal, K. K., Leung, M-C., Bishop, J. L., Cairns, B. D., et al. (2004). Exploring risk in early adolescent African-American youth. *American Journal of Community Psychology*, 33, 51-59.

Farmer, T. W., Van Acker, R. M., Pearl, R., & Rodkin, P. C. (1999). Social networks and peer-assessed problem behavior in elementary classrooms: Students with and without disabilities. *Remedial and Special Education*. 20, 244-256.

Farrell, A. D., Valois, R. F., Meyer, A. L., & Tidwell, R. P. (2003). Impact of the RIPP violence prevention program on rural middle school students. *The Journal of Primary Prevention, 24*, 143-167.

Feigelman, S., Howard, D. E., Xiaoming, L., & Cross, S. I. (2000). Psychosocial and environmental correlates of violence perpetration among African-American urban youth. *Journal of Adolescent Health, 27*, 202-209.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*, 117-142.

Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology, 82*, 221-234.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*, 59-109.

Fisher, C. B., Wallace, S. A., & Fenton, R. E. (2000). Discrimination distress during adolescence. *Journal of Youth and Adolescence, 29*, 679-695.

Fitzpatrick, K. M. (1997). Aggression and environmental risk among low-income African-American youth. *Journal of Adolescent Health, 21*, 172-178.

Fluharty, C. W. (2002). Toward a community-based national rural policy: The importance of the social services sector. *Child Welfare, 81*, 663-688.

Fraser, M. W., & Allen-Meares, P. (2004). Intervention with children and adolescents: New hope and enduring challenges. In P. Allen-Meares, & M. W. Fraser (Eds.),

Intervention with Children and Adolescents: An Interdisciplinary Perspective (pp. 532-544). Boston: Allyn and Bacon.

Friedman, S., & Lichter, D. T. (1998). Spatial inequality and poverty among American children. *Population Research and Policy Review, 17,* 91-109.

Garcia Coll, C. T. (1990). Developmental outcome of minority infants: A process-oriented look into our beginnings. *Child Development, 61*, 270-289.

Garcia Coll, C., Lamberty, G., Jenkins, R., McAdoo, H. P., Crnic, K., Wasik, B. H., et al. (1996). An integrative model for the study of developmental competencies in minority children. *Child Development, 67*, 1891-1914.

Garmezy, N. (1985). Stress resistant children: The search for protective factors. In J. E. Stevenson (Ed.) *Aspects of current child psychiatry research. Journal of child psychology and psychiatry, book supplement 4* (pp. 213-233).

Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development, 55*, 97-111.

Gest, S. D., Mahoney, J. L., & Cairns, R. B. (1999). A developmental approach to prevention research: Configural antecedents of early parenthood. *American Journal of Community Psychology, 27*, 543-565.

Gibbons, F. X., Gerrard, M., Cleveland, M. J., Willis, T. A., & Brody, G. (2004). Perceived discrimination and substance use in African American parents and their children: A panel study. *Journal of Personality and Social Psychology, 86*, 517-529.

Gilman, R., Meyers, R., & Perez, L. (2004). Structured extracurricular activities among adolescents: Findings and implications for school psychologists. *Psychology in the Schools, 41*, 31-41.

Ginwright, S., & Cammarota, J. (2002). New terrain in youth development: The promise of a social justice approach. *Social Justice, 29*, 82-95.

Goodman, M. R., Stormshak, E. A., & Dishion, T. J. (2001). The significance of peer victimization at two points in development. *Journal of Applied Developmental Psychology, 22*, 507-526.

Graybeal, C. (2001). Strengths-based social work assessment: Transforming the dominant paradigm. *Families in Society, 82*, 233-242.

Greenberg, M. T. (2004). Current and future challenges in school-based prevention: The researcher perspective. *Prevention Science, 5*, 5-13.

Gutman, L., & McLoyd, V. (2000). Parents' management of their children's education within the home, at school, and in the community: An examination of African-American families living in poverty. *The Urban Review, 32*,1-24.

Gutman, L., Sameroff, A. J., & Eccles, J. S. (2002). The academic achievement of African American students during early adolescence: An examination of multiple risk, promotive, and protective factors. *American Journal of Community Psychology, 30*, 367-400.

Hardy, M. A. (1993). *Regression with dummy variables*. London: Sage Publications.

Harrison, A. O., Wilson, M. N., Pine, C. J., Chan, S. Q., & Buriel, R. (1990). Family ecologies of ethnic minority children. *Child Development, 61*, 347-362.

Hawkins, J. D., Catalano, R. F., & Arthur, M. W. (2002). Promoting science-based prevention in communities. *Addictive Behaviors, 27*, 951-976.

Hawkins, J. D., Doueck, H. J., & Lishner, D. M. (1988). Changing teacher practices in mainstream classrooms to improve bonding and behavior of low achievers. *American Educational Research Journal, 25*, 31-50.

Hawkins, J. D., & Lam, T. C. (1985). The social development model: An integrated approach to delinquency prevention. *Journal of Primary Prevention,* 6, 73-97.

Hawkins, J. D., & Weis, J. G. (1985). The social development model: An integrated approach to delinquency prevention. *Journal of Primary Prevention, 6*, 73-97.

Herrenkohl, T.I., Hill, K.G., Chung, I.J., Guo, J., Abbott, R.D., & Hawkins, J.D. (2003). Protective factors against serious violent behavior in adolescence: A prospective study of aggressive children. *Social Work Research, 27,* 179-191.

Holland, A. & Andre, T. (1987). Participation in extracurricular activities in secondary school: What is known, what needs to be known? *Review of Educational Research, 57*, 437-466.

Howley, C. (2003). Mathematics education in rural communities: An essay on the parameters of respectful research. *Journal of Research in Rural Education, 18*, 45-51.

Howley, C., & Gunn, E. (2003). Research about mathematics achievement in the rural circumstance. *Journal of Research in Rural Education, 18*, 86-95.

Huang, D. B., Cherek, D. R., & Lane, S. D. (1999). Laboratory measurement of aggression in high school age athletes: Provocation in a nonsporting context. *Psychological Reports, 85*, 1251-1262.

Huesmann, R. L., Eron, L. D., Guerra, N. G., & Crawshaw, V. B. (1994). Measuring children's aggression with teachers' predictions of peer nominations. *Psychological Assessment, 6*, 329-336.

Irwin, C. E., Jr., Burg, S. J., & Cart, C. U. (2002). America's adolescents: Where have we been, where are we going? *Journal of Adolescent Health, 31*, 91-121.

Jimerson, S., Egeland, B., & Teo, A. (1999). A longitudinal study of achievement trajectories: Factors associated with change. *Journal of Educational Psychology, 91*, 116-126.

Johnson, B., Jang, S., De Li, S., & Larson, D. (2000). The 'Invisible Institution' and Black youth crime: The church as an agency of local social control. *Journal of Youth and Adolescence, 29*, 479-498.

Jolliffe, D. (2002). Rural poverty at record low in 2000. *Rural America, 17*, 74-77.

Jordan, W. J., & Nettles, S. M. (2000). How students invest their time outside of school: Effects on school-related outcomes. *Social Psychology of Education, 3*, 217-243.

Kaplan, H. B. (1999). Toward an understanding of resilience: A critical review of definitions and models. In M. D. Glantz, & J. L. Johnson (Eds.), *Resilience and development: Positive life adaptions* (pp. 17-83). New York: Kluwer Academic/Plenum.

Khattri, N., Riley, K., & Kane, M. (1997). Students at risk in poor, rural areas: A review of the research. *Journal of Research in Rural Education, 13*, 79-100.

Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: Guilford Press.

Kuntsche, E. N., & Klingemann, H. K. (2004). Weapon-carrying at Swiss schools? A gender-specific typology in context of victim and offender related violence. *Journal of Adolescence, 27*, 381-393.

Kupersmidt, J. B., & Coie, J. D. (1990). Preadolescent peer status, aggression, and school adjustment as predictors of externalizing problems in adolescence. *Child Development, 61*, 1350-1362.

LaFontana, K. M., & Cillessen, A. H. N. (2002). Children's perceptions of popular and unpopular peers: A multimethod assessment. *Developmental Psychology, 38*, 635-647.

Larson, N. C., & Dearmont, M. (2002). Strengths of farming communities in fostering resilience in children. *Child Welfare, 51*, 821-835.

Leshner, A. I. (1999). Introduction. In M. D. Glantz, & J. L. Johnson (Eds.), *Resilience and development: Positive life adaptions* (pp. 1-3). New York: Kluwer Academic/Plenum.

Leung, M. (1996). Social networks and self-enhancement in Chinese children: A comparison of self reports and peer reports of group membership. *Social Development, 6*, 146-157.

Little, T. D., Brauner, J., Jones, S. M., Nock, M. K., & Hawley, P. H. (2003). Rethinking aggression: A typological examination of the functions of aggression. *Merrill-Palmer Quarterly, 49*, 343-369.

Lonczak, H. S., Abbott, R. D., Hawkins, D., Kosterman, R., & Catalano, R. F. (2002). Effects of the Seattle Social Development Project on sexual behavior, pregnancy, birth, and sexually transmitted disease outcomes by age 21 years. *Archives of Pediatric and Adolescent Medicine, 156*, 438-447.

Luthar, S. S. (1993). Annotation: Methodological and conceptual issues in research on childhood resilience. *Journal of Child Psychology and Psychiatry, 34*, 441-453.

Luthar, S. S., & Cicchetti, D. (2000). The construct of resilience: Implications for interventions and social policies. *Development and Psychopathology, 12*, 857-885.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*, 543-562.

Ma, X. (2002). Bullying middle school: Individual and school characteristics of victims and offenders. *School Effectiveness and School Improvement, 13*, 63-89.

Maddox, S. J., & Prinz, R. J. (2003). School bonding in children and adolescents: Conceptualizations, assessment, and associated variables. *Clinical Child and Family Psychology Review, 6*, 31-49.

Magnusson, D. (2003). Person-centered approaches in studying development in context. *New Directions for Child and Adolescent Development, 101*, 3-23.

Mangusson, D., & Cairns, R. B. (1996). Developmental science: Toward a unified framework. In R. B. Cairns, G. H. Elder, Jr., & E. J. Costello (Eds.), *Developmental science* (pp. 7-30). New York: Cambridge University Press.

Mahoney, J. L. (2000). School extracurricular activity participation as a moderator in the development of antisocial patterns. *Child Development, 71*, 502-416.

Mahoney, J. L., & Bergman, L. R. (2002). Conceptual and methodological considerations in a developmental approach to the study of positive adaptation. *Applied Developmental Psychology, 23*, 195-217.

Mahoney, J. L., & Cairns, R. B. (1997). Do extracurricular activities protect against early school dropout? *Developmental Psychology, 33*, 241-253.

Mahoney, J. L., Cairns, B. D., & Farmer, T. W. (2003). Promoting interpersonal competence and educational success through extracurricular activity participation. *Journal of Educational Psychology, 95*, 409-418.

Mahoney, J. L., Schweder, A. E., & Hakan, S. (2002). Structured after-school activities as a moderator of depressed mood for adolescents with detached relations to their parents. *Journal of Community Psychology, 30*, 69-86.

Mahoney, J. L., & Stattin, H. (2000). Leisure activities and adolescent antisocial behavior: The role of structure and social context. *Journal of Adolescence, 23*, 113-127.

Mahoney, J. L., Stattin, H., & Magnusson, D. (2001). Youth recreation centre participation and criminal offending: A 20-year longitudinal study of Swedish boys. *International Journal of Behavioral Development, 25*, 509-520.

Malik, S., Sorenson, S. B., & Aneshensel, C. S. (1996). Community and dating violence among adolescents: Perpetration and victimization. *Journal of Adolescent Health, 21*, 291-302.

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

Masten, A. S. (2001). Ordinary Magic: Resilience processes in development. *American Psychologist, 56,* 227-238.

Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from successful children. *American Psychologist, 53*, 205-220.

Masten, A. S., Garmezy, N., Tellegen, A., Pellegrini, D. S., Larkin, K., & Larsen, A. (1988). Competence and stress in school children: The moderating effects of individual and family qualities. *Journal of Child Psychology and Psychiatry, 29*, 745-764.

Masten, A. S., Hubbard, J. J., Gest, S. D., Tellegen, A., Garmezy, N., & Ramirez, M. (1999). Competence in the context of adversity: Pathways to resilience and maladaptation from childhood to late adolescence. *Development and Psychopathology, 11,* 143-169.

Masten, A. S., Morison, P., & Pellegrini, D. S. (1985). A revised class play method of peer assessment. *Developmental Psychology, 21*, 523-533.

Maton, K. I., Dodgen, D. W., Leadbeater. B. J., Sandler, I. N., Schellenbach, C. J., & Solarz, A. L. (2004). Strengths-based research and policy: An introduction. In K. I. Maton, C. J. Schellenbach, B. J. Leadbeater, & A. L. Solarz (Eds.), *Investing in children, youth, families, and communities: Strengths-based research and policy* (pp. 3-12).

Maton, K. I., Schellenbach, C. J., Leadbeater, B. J., & Solarz, A. L. (2004). *Investing in children, youth, families, and communities: Strengths-based research and policy.* Washington, D. C.: American Psychological Association.

Menanteau-Horta, D., & Yigzaw, M. (2002). Indicators of social well-being and elements of child welfare in Minnesota rural counties. *Child Welfare, 81*, 709-735.

Merrell, K. W., Buchanan, R., & Tran, O. K. (2006). Relational aggression in children and adolescents: A review with implications for school settings. *Psychology in the Schools, 43*, 345-360.

McLoyd, V. C. (1990a). Minority children: Introduction to the special issue. *Child Development, 61*, 263-266.

McLoyd, V. C. (1990b). The impact of economic hardship on black families and children: Psychological distress, parenting, and socioemotional development. *Child Development, 61*, 311-346.

McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *Child Development, 53*, 185-204.

McMillen, J. C., Morris, L., & Sherraden, M. (2004). Ending social work's grudge match: Problems versus strengths. *Families in Society, 85*, 317-325.

McNeal, R. (1995). Extracurricular activities and high school dropouts. *Sociology of Education, 68*, 62-80.

Miller, G. E., Brehm, K., & Whitehouse, S. (1998). Reconceptualizing school-based prevention for antisocial behavior within a resiliency framework. *School Psychology Review, 27*, 364-379.

Mooney, P., Ryan, J. B., Uhing, B. M., Reid, R., & Epstein, M. H. (2005). A review of self-management interventions targeting academic outcomes for students with emotional and behavioral disorders. *Journal of Behavioral Education, 14*, 2023-221.

Murry, V. M., & Brody, G. H. (1999). Self-regulation and self-worth of Black children reared in economically stressed, rural, single mother headed families: The contribution of risk and protective factors. *Journal of Family Issues, 20,* 458-484.

National Center for Injury Prevention and Control. (2002). *CDC Injury Research Agenda*. Atlanta, GA: Centers for Disease Control and Prevention.

National Education Association. (1998). *Status of public education in rural areas and small towns: A comparative analysis*. Retrieved May 12, 2004, from http://www.nea.org/rural/companal-rural.html

National Research Council and Institute of Medicine. (2002). Adolescent development. In Eccles, J., & Gootman, J. A. (Eds.) *Community Programs to Promote Youth Development* (pp. 45-65)

O'Donnell, J., Hawkins, J.D., & Abbott, R.D. (1995). Predicting serious delinquency and substance use among aggressive boys. *Journal of Consulting and Clinical Psychology, 63*, 529-537.

Paternoster, R., Brame, R., Mazerolle, P., & Piquero, A. (1998). Using the correct statistical test for the equality of regression coefficients. *Criminology, 36*, 859-866.

Pianta, R. C., & Walsh, D. J. (1998). Applying the construct of resilience in schools: Cautions from a developmental systems perspective. *School Psychology Review, 27*, 407-417.

Pellegrini, A. D. (2002). Bullying, victimization, and sexual harassment during the transition to middle school. *Educational Psychologist, 37*, 151-163.

Pellegrini, A. D. (2003). Perceptions and functions of play and real fighting in early adolescence. *Child Development, 74*, 1522-1533.

Pellegrini, A. D., & Bartini, M. (2000). An empirical comparison of methods of sampling aggression and victimization in school settings. *Journal of Educational Psychology, 92*, 360-366.

Pellegrini, A. D., Bartini, M., & Brooks, F. (1999). School bullies, victims, and aggressive victims: Factors relating top group affiliation and victimization in early adolescence. *Journal of Educational Psychology, 91*, 216-224.

Pellegrini, A. D., & Long, J. D. (2002). A longitudinal study of bullying, dominance, and victimization during the transition from primary school through secondary school. *British Journal of Developmental Psychology, 20*, 259-280.

Pellegrini, A. D., & Long, J. D. (2003). A sexual selection theory longitudinal analysis of sexual segregation and integration in early adolescence. *Journal of Experimental Child Psychology, 85*, 257-278.

Perry, D. G., Willard, J. C., & Perry, L. C. (1990). Peers' perceptions of the consequences that victimized children provide aggressors. Child Development, 61, 1310-1325.

Powell, D. R., Peet, S. H., & Peet, C. E. (2002). Low-income children's academic achievement and participation in out-of-school activities in 1st grade. *Journal of Research in Childhood Education, 16*, 202-211.

Price, J. H., & Everett, S. A. (1997). Teachers' perceptions of violence in the public schools: The Metlife survey. American Journal of Health Behavior, 21, 178-186.

Prinstein, M. J., & Cillessen, A. H. N. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly, 49*, 310-342.

Regnerus, M. & Elder, G. (2003). Staying on track in school: Religious influences in high- and low-risk settings. *Journal for the Scientific Study of Religion, 42*, 633-649.

Reese, L. E., Vera, E. M., Thompson, K., & Reyes, R. (2001). A qualitative investigation of perceptions of violence risk factors in low-income African American children. *Journal of Clinical Child Psychology, 1*, 161-171.

Rigby, K. (2000). Effects of peer victimization in schools and perceived social support on adolescent well-being. *Journal of Adolescence, 23*, 57-68.

Risi, S., Gerhardstein, R., & Kistner, J. (2003). Children's classroom peer relationships and subsequent educational outcomes. *Journal of Clinical Child and Adolescent Psychology, 32*, 351-361.

Rodkin, P., Farmer, T.W., Pearl, R., & VanAcker, R. (2000). The heterogeneity of popularity in boys: Antisocial and prosocial configurations. *Developmental Psychology, 36*, 14–24.

Roeser, R. W., & Peck, S. C. (2003). Patterns and pathways of educational achievement across adolescence: A holistic-developmental perspective. *New Directions for Child and Adolescent Development, 101*, 39-62.

Rohrbeck, C. A., Ginsburg-Block, M. D., Fantuzzo, J. W., & Miller, T. R. (2003). Peer-assissted learning interventions with elementary school students: A meta-analytic review. *Journal of Educational Psychology, 95*, 240-257.

Rose, A. J., Swenson, L. P., & Waller, E. M. (2004). Overt and relational aggression and perceived popularity: Developmental differences in concurrent and prospective relations. *Developmental Psychology, 3*, 378-387.

Rouse, K. A. G. (2001). Resilient students' goals and motivation. *Journal of Adolescence*, *24*, 461-472.

Rural School and Community Trust. (2003). *Why rural matters 2003: The continuing need for every state to take action on rural education*. Retrieved May 12, 2004, from http://www.ruraledu.org/newsroom/wrm_new.htm

Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resilience in psychiatric disorder. *British Journal of Psychiatry, 147*, 598-611.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 73*, 316-331.

Ryan, J. B., Reid, R., & Epstein, M. H. (2004). Peer-mediated intervention studies on academic achievement for students with EBD: A review. *Remedial and Special Education, 25*, 330-341.

Sameroff, A. J. (1999). Ecological perspectives on developmental risk. In J. D. Osofsky & H. E. Fitzgerald (Eds.), *WAIMH handbook of infant mental health, Vol. 4: Infant mental health groups at risk* (pp. 223-248). New York: Wiley.

Sameroff, A. J., & Gutman, L. M. (2004). Contributions of risk research to the design of successful interventions. In P. Allen-Meares, & M. W. Fraser (Eds.), *Intervention with Children and Adolescents: An Interdisciplinary Perspective* (pp. 9-26). Boston: Pearson Education.

Save the Children. (2002). America's forgotten children: Child poverty in rural America. Retrieved May 13, 2004, from http://www.savethechildren.org/usa/report_download.asp

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7*, 147-177.

Schreiber, J., & Chambers, E. (2002). After-school pursuits, ethnicity and achievement for 8th- and 10th- grade students. *Journal of Educational Research, 96*, 90-100.

Schwartz, D. (2000). Subtypes of victims and aggressors in children's peer groups. *Journal of Abnormal Child Psychology, 28*, 181-192.

Schwartz, D., & Gorman, A. H. (2003). Community violence exposure and children's academic functioning. *Journal of Educational Psychology, 95*, 163-173.

Seals, D., & Young, J. (2003). Bullying and victimization: Prevalence and relationship to gender, grade level, ethnicity, self-esteem, and depression. *Adolescence, 38*, 735-747.

Sellers, R. M., Caldwell, C. H., Schmeelk-Cone, K. H., & Zimmerman, M. A. (2003). Racial identity, racial discrimination, perceived stress, and psychological distress among African American young adults. *Journal of Health and Social Behavior, 44*, 302-317.

Shapiro, E. S. (1996). *Academic skills problems: Direct assessment and intervention* (2nd ed.). New York: Guilford Press.

Skinner, M. L., Elder, G. H., & Conger, R. D. (1992). Linking economic hardship to adolescent aggression. *Journal of Youth and Adolescence, 21*, 259-276.

Simon, T. R., Crosby, A. E., & Dahlberg, L. L. (1999). Students who carry weapons to high school: Comparison with other weapon-carriers. *Journal of Adolescent Health, 24*, 340-348.

Slavin, R. E. (1980). Cooperative learning. *Review of Educational Research, 50*, 315-342.

Slavin, R. E., & Karweit, N. (1984). Mastery learning and student teams: A factorial experiment in urban general mathematics classes. *American Educational Research Journal, 21*, 725-736.

Slavin, R. E., Madden, N. A., & Leavey, M. (1984). Effects of cooperative learning and individualized instruction on mainstreamed students. *Exceptional Children, 50*, 434-443.

Smith, P. K. (2004). Bullying: Recent developments. *Child and Adolescent Mental Health, 9*, 98-103.

Smith, P. K., Ananiadou, K., & Cowie, H. (2003). Interventions to reduce school bullying. *Canadian Journal of Psychiatry, 48*, 591-599.

Solberg, M. E., & Olweus, D. (2003). Prevalence estimations of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behavior, 29*, 239-268.

Spoth, R. (1997). Challenges in defining and developing the field of rural mental disorder preventive intervention research. *American Journal of Community Psychology, 25*, 425-448.

Spoth, R., Guyll, M., Trudeau, L., & Goldberg-Lillehoj, C. (2002). Two studies of proximal outcomes in a community-university collaboration context. *Journal of Community Psychology, 30*, 499-518.

Stage, S. A., & Quiroz, D. R. (1997). A meta-analysis of interventions to decrease disruptive classroom behavior in public education settings. *School Psychology Review, 26*, 333-368.

Stattin, H., & Magnusson, D. (1996). Antisocial development: A holistic approach. *Development and Psychopathology, 8*, 617-645.

Stockdale, M. S., Hangaduambo, S., Duys, D., Larson, K., & Sarvela, P. D. (2002). Rural elementary students', parents', and teachers' perceptions of bullying. *American Journal of Health Behavior, 26*, 266-277.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston: Allyn and Bacon.

Taylor, R. J. (1988). Structural determinants of religious participation among black Americans. *Review of Religious Research, 30*, 114-125.

Taylor, R. J., & Chatters, L. M. (1991). Non-organizational religious participation among elderly Blacks. *Journals of Gerontology: Social Science, 46*, 103-111.

Taylor, R. J., Chatters, L. M., Jayakody, R., & Levin, J. S. (1996). Black and white differences in religious participation: A multisample comparison. *Journal for the Scientific Study of Religion, 35*, 403-410.

Taylor, R. J., Mattis, J., & Chatters, L. M. (1999). Subjective religiosity among African Americans: A synthesis of findings from five national samples.

Tickamyer, A. R., & Duncan, C. M. (1990). Poverty and opportunity structure in rural America. *American Review of Sociology, 16*, 67-86.

Tolan, P. H. (2001). Emerging themes and challenges in understanding youth violence involvement. *Journal of Community Psychology, 30*, 233-239.

Tolan, P. H., Gorman-Smith, D., & Henry, D. B. (2003). The developmental ecology of urban males' youth violence. *Developmental Psychology, 39*, 274-291.

Tremblay, R. E. (2006). Prevention of youth violence: Why not start at the beginning? *Journal of Abnormal Child Psychology, 34*, 481-487.

U. S. Departments of Education and Justice. (2004). *Indicators of school crime and safety: 2004*. Retrieved December 1, 2004, from http://www.ojp.usdoj.gov/bjs/pub/pdf/iscs04.pdf

Valois, R. F., MacDonald, J. M., Bretous, L., Fischer, M. A., & Drane, J. W. (2002). Risk factors and behaviors associated with adolescent violence and aggression. *American Journal of Health Behavior, 26*, 454-464.

Valois, R. F., McKeown, R. E., & Garrison, C. Z., & Vincent, M. L. (1995). Correlates of aggressive and violent behaviors among public high school adolescents. *Journal of Adolescent Health, 16*, 26-34.

Vandell, D. L., Pierce, K. M., & Dadisman, K. (2005). Out-of-school settings as a developmental context for children and youth. In R. V. Kail (Ed.), *Advances in child development and behavior* (pp. 43-77). Amsterdam: Elsevier Academic Press.

Verkuyten, M., & Thijs, J. (2002). School satisfaction of elementary school children: The role of performance, peer relations, ethnicity and gender. *Social Indicators Research, 59*, 203-228.

Vicary, J. R., Henry, K. L., Bechtel, L. J., Swisher, J. D., Smith, E. A., Wylie, R., et al. (2004). Life skills training effects for high and low risk rural junior high school females. *The Journal of Primary Prevention, 25*, 399-416.

Von Eye, A., & Bergman, L. R. (2003). Research strategies in developmental psychopathology: Dimensional identity and the person-oriented approach. *Development and Psychopathology, 15*, 553-580.

Wadsworth, M. E., & Compas, B. E. (2002). Coping with family conflict and economic strain: The adolescent perspective. *Journal of Research on Adolescence, 12*, 243-274.

Wallace, J. M., Jr., Forman, T. A., Caldwell, C. H., & Willis, D. S. (2003). Religion and U.S. secondary school students: Current patterns, recent trends, and sociodemographic correlates. *Youth and Society, 35*, 98-125.

Ward, J. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association, 58*, 236-244.

Waxman, H. C., Huang, S. L., & Padron, Y. N. (1997). Motivation and learning environment differences between resilient and nonresilient Latino middle school students. *Hispanic Journal of Behavioral Sciences, 19*, 137-155.

Wayman, J. C. (2002). The utility of educational resilience for studying degree attainment in school dropouts. *Journal of Educational Research, 95*, 167-178.

Werner, E. E., & Smith, R. S. (1982). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York: McGraw Hill.

Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood*. Ithaca, NY: Cornell University Press.

Werner, E. E., & Smith, R. S. (2001). *Journeys from childhood to midlife: Risk, resilience, and recovery*. Ithaca, NY: Cornell University Press.

Wilkinson, D. L., & Fagan, J. (2001). What we know about gun use among adolescents. *Clinical Child and Family Psychology Review, 4*, 109-132.

Wills, T. A., Gibbons, G. X., Gerrard, M., Murry, V. M., & Brody, G. (2003). Family communication and religiosity related to substance use and sexual behavior in early adolescence: A test for pathways through self-control and prototype perceptions. *Psychology of Addictive Behaviors, 17*, 312-323.

Wilson, S. J., Lipsey, M. W., & Derzon, J. H. (2003). The effects of school-based intervention programs on aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical Psychology, 71*, 136-149.

Xie, H., Cairns, B. D., & Cairns, R. B. (2001). Predicting teen motherhood and teen fatherhood: Individual characteristics and peer affiliations. *Social Development, 10*, 488-511.

Xie, H., Farmer, T. W., & Cairns, B. D. (2003). Different forms of aggression among inner-city African-American children: Gender, configurations, and school social networks. *Journal of School Psychology, 41*, 355-375.

Yoon, J. S., Barton, E., & Taiariol, J. (2004). Relational aggression in middle school: Educational implications of developmental research. *Journal of Early Adolescence, 24*, 303-318.