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Risk and Protective Factors Across Multiple Microsystems Associated With Internalizing Symptoms and Aggressive Behavior in Rural Adolescents: Modeling Longitudinal Trajectories From the Rural Adaptation Project

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The current study examined risk and protective factors across microsystems that impact the development of internalizing symptoms and aggression over 4 years in a sample of culturally diverse, rural adolescents. We explored whether risk and protective factors across microsystems were associated with changes in rates of internalizing symptoms and aggressive behavior. Data came from the Rural Adaptation Project (RAP), a 5-year longitudinal panel study of more than 4,000 students from 26 public middle schools and 12 public high schools. Three level HLM models were estimated to predict internalizing symptoms (e.g., depression, anxiety) and aggression. Compared with other students, risk for internalizing symptoms and aggression was elevated for youth exposed to risk factors in the form of school hassles, parent–child conflict, peer rejection, and delinquent friends. Microsystem protective factors in the form of ethnic identity, religious orientation, and school satisfaction decreased risk for aggression, but were not associated with internalizing symptoms, whereas future orientation and parent support decreased risk for internalizing symptoms, but not aggression. Results indicate that risks for internalizing symptoms and aggression are similar, but that unique protective factors are related to these adolescent behavioral health outcomes. Implications and limitations were discussed.

The field of developmental psychopathology seeks to explain the development of psychological disorders such as internalizing symptoms (e.g., depression, anxiety) and behavioral disorders (e.g., Conduct Disorder, Oppositional Defiant Disorder). Specifically, “Developmental psychopathology should bridge fields of study, span the life cycle, and aid in the discovery

of important new truths about the processes underlying adaptation and maladaptation, as well as the best means of preventing or ameliorating psychopathology” (Cicchetti, 1990; p. 20). The current study seeks to illuminate risk and protective factors across various social microsystems that impact the development of internalizing symptoms and aggression during adolescence. The find-

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ings can then be used to inform the development of multifaceted intervention approaches to decrease and prevent internalizing symptoms and aggression in adolescents.

Several researchers have documented the comorbidity of internalizing symptoms and aggression among adolescents (e.g., Marshall, Arnold, Rolon-Arroyo, & Griffith, 2015; Zahn-Wexler, Klimes-Dougan, & Slattery, 2000), highlighting the importance of studying these forms of psychopathology together to uncover risk and protective factors common to both disorders. Indeed, much of the literature on risk and protective factors has explored these outcomes separately (e.g., Arim, Dahinten, Marshall, & Shapka, 2011; Seals & Young, 2003; Smokowski, Cotter, Robertson, & Guo, 2013; Witherspoon, Schotland, Way, & Hughes, 2009), which is problematic given the shared variance between internalizing symptoms and aggression and suggests the need to include measures of both disorders in statistical models.

The Negative Impact of Internalizing Symptoms and Aggression on Adolescent Outcomes

The presence of internalizing symptoms and aggression has a profoundly negative impact on adolescent development. Internalizing symptoms are linked to decreased psychosocial and academic functioning and an increased risk for substance abuse and suicide (see Birmaher et al., 1996 for a review). In addition, compared with nondepressed adolescents, those suffering from depression have significantly lower full-scale, verbal, and performance IQs as well as significantly worse working memories, planning ability, verbal fluency, and sustained attention (See Wagner, Muller, Helmreich, Huss, & Tadic, 2015 for a review). Anxiety is specifically connected with worry, difficulty concentrating, irritability, fatigue, and sleep disturbances (American Psychiatric Association, 2013). Further, childhood and adolescent anxiety has long term negative consequences and predicted poor adjustment, negative family relationships, weak coping skills, decreased life satisfaction, and increased family problems, chronic stress, substance use disorders, alcohol abuse/dependence, and anxiety in adulthood (Essau, Lewinsohn, Olaya, & Seeley, 2014).

Aggression is associated with decreased academic performance resulting in lower grades and a decreased likelihood of graduating from high school (Bierman et al., 2013). In addition, aggressive behavior is associated with poor social relationships including parent-adolescent conflict, negative peer relationships (Smokowski, Cotter, Robertson, & Guo, 2013), and an increased likelihood of being a bully or bully/victim (Burton, Florell, & Gore, 2013; Menesini, Modena, & Tani, 2009). Aggression is also related to antisocial behaviors such as weapon carrying (Swahn, Bossarte, Palmier, Yao, & van Dulmen, 2013), gang involvement (Ang, Huan, Chan, Cheong, & Leaw, 2015), and delinquency (Marsee et al., 2014), as well as self-harming behaviors such as attempted suicide and binge drinking (Swahn et al., 2013).

The relationship between internalizing symptoms and aggression appears to be reciprocal as longitudinal research indicates that symptoms of depression and anxiety lead to increased aggression and that aggression results in subsequent increases in depression and anxiety (McLaughlin, Aldao, Wisco, & Hilt, 2014). Despite the negative outcomes associated with internalizing symptoms and aggressive behavior and the comorbidity between the two disor-

ders, few researchers have examined these constructs together. Thus, the aim of the current study is to examine how risk and protective factors in the family, peer, school, and neighborhood microsystems impact internalizing symptoms and aggressive behavior in rural youth over a four-year time period.

Microsystem Risk Factors That Increase Internalizing Symptoms and Aggression

Negative Relationships With Parents: Parent-Child Conflict

The presence of parent-child conflict represents a risk factor in the family microsystem as it impedes the formation of a supportive and healthy parent-child relationship, thus depriving youth of the positive guidance of supportive and engaged parents. It follows that parent-child conflict is associated with increased internalizing symptoms (Marmorstein & Iacono, 2004; Suldo, Shaunessy, Thalji, Michalowski, & Shaffer, 2009) and aggression (Eichelsheim et al., 2010; Smokowski, Cotter, Robertson, & Guo, 2013). Indeed, without the security of a positive parent-child relationship, youth are likely to become depressed, anxious, and engage in risky behavior such as aggression (Green, Myrick, & Crenshaw, 2013). In line with this research it follows that high levels of parent-child conflict result in increased internalizing symptoms and aggression in adolescents.

Negative Peer Relationships: Rejection, Delinquency, and Peer Pressure

Conflictual peer relationships represent another risk factor in the school microsystem that puts youth at risk for suffering from poor mental health outcomes. For example, being rejected by one's peers leads to negative mental and social development (Beeri & Lev-Wiesel, 2012; Lopez & DuBois, 2005) and aggressive behavior (Dodge et al., 2003). Given that adolescents influence each other's behavior, youth become similar to their friends over time (Bagwell & Schmidt, 2011). Thus, associating with aggressive and delinquent peers is a predictor of aggressive behavior (Espelage, Holt, & Henkel, 2003; Ferguson, San Miguel, & Hartley, 2009) and is also associated with symptoms of anxiety (La Greca & Harrison, 2005; Smokowski et al., 2013). Finally, susceptibility to peer pressure is linked with symptoms of depression (Allen, Porter, & McFarland, 2006) and peer pressure to engage in aggression and delinquency are associated with increases in these deviant behaviors (Padilla-Walker & Bean, 2009).

Negative Relationships at School: School Hassles and Bullying Victimization

Being hassled and bullied at school is a common risk factor in the school microsystem that indicates a lack of peer support and results in negative developmental outcomes. Relative to nonvictimized youth, victims report increased rates of internalizing symptoms (Smokowski & Kopasz, 2005; Sweeting, Young, West, & Der, 2006), depression, and anxiety (Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999; Seals & Young, 2003). Further, victimized youth often engage in reactive aggression and

report rates of behavioral problems higher than their nonvictimized counterparts (Camodeca & Goossens, 2005; Salmivalli & Nieminen, 2002).

Mental Health Symptoms: Internalizing Symptoms and Aggression

Depressed and anxious youth might be withdrawn and therefore unappealing social companions who peers and adults refrain from investing in (see Birmaher et al., 1996 for a review; see Wagner et al., 2015 for a review). Studies have found an association between internalizing symptoms and aggression (e.g., Crick, Ostrov, & Werner, 2006; Kofler et al., 2011; Marsee, Weems, & Taylor, 2008). This relationship holds up longitudinally and depressive symptoms in late childhood predicted increased aggression over time (Kerr, Reinke, & Eddy, 2013). Aggression is also a risk factor for poor developmental outcomes and might also impact depression and anxiety. Indeed, researchers have found a link between adolescent aggressive behavior and anxiety (Crick et al., 2006; Marsee et al., 2008; Storch, Bagner, Geffken, & Baumeister, 2004). Taken together, this body of research suggests that internalizing symptoms are a risk factor for increased aggression and vice versa, highlighting the need to investigate common and disparate risk and protective factors effecting both outcomes.

Microsystem Protective Factors That Decrease Internalizing Symptoms and Aggression

Future Optimism

Future optimism is a protective factor that indicates the level of hope and confidence youth feel about their future. Youth with high levels of future optimism are likely positive and upbeat individuals who might be attractive social partners, thus garnering support from peers and engage adults. Further, optimism about the future perhaps denotes feelings of positivity in the present, which could serve to combat internalizing symptoms and aggression. Indeed, the presence of future optimism strengthens mental health functioning for vulnerable adolescents (McCabe & Barnett, 2000; Polgar & Auslander, 2009) and was associated with decreased teacher and self-reports of aggression (Polgar & Auslander, 2009; Smokowski, Evans, Cotter, & Webber, 2014).

Social Support: Positive Relationships With Parents, Friends, and Teachers

Social support from parents, friends, and teachers is a protective factor in the family and school microsystems that has the potential to buffer against internalizing symptoms and aggression. The presence of parent support indicates that parents are invested in their children's development and likely encourage them to excel academically, connect with prosocial peers and adults, and engage in prosocial activities. Indeed, the bond created between parent and child as a result of parental support was associated with decreased levels of depression (Rueger, Malecki, & Demaray, 2008; Witherspoon et al., 2009) and over time, parent nurturance was associated with decreased aggression (Arim et al., 2011).

Research shows that friend and classmate support is inversely associated with internalizing symptoms (Rueger et al., 2008; Stewart & Suldo, 2011). The reverse is also true; low levels of peer support are associated with increased internalizing symptoms (Rosario, Salinger, Feldman, & Ng-Mak, 2008) and increased levels of teacher reports of aggression (Benhorin & McMahon, 2008). Finally, support from teachers is linked with a number of positive mental health outcomes such as decreased self-reports of internalizing symptoms and externalizing behavior and teacher reports of aggression (Benhorin & McMahon, 2008; Rueger et al., 2008; Stewart & Suldo, 2011).

Community Engagement: Ethnic Identity, Religious Orientation, and School Satisfaction

Both ethnic identity and religious orientation are protective factors that are indicative of a prosocial community microsystem that provides youth with the opportunity to connect with supportive peers and adults, giving youth a sense of group membership. Ethnic identity refers to an individuals' identification with (Bernal & Knight, 1993) and connection to a certain ethnic group (Phinney, Horenczyk, Liebkind, & Vedder, 2001). A strong ethnic identity indicates a feeling of connection to one's ethnic group, which fosters a feeling of support and solidarity, resulting in decreased depression (Kiang, Witkow, & Champagne, 2013), anxiety (Tynes, Umaña-Taylor, Rose, Lin, & Anderson, 2012), and aggression (Flanagan et al., 2011).

Religious orientation is a measure of the degree to which youth value religion and participation in religious activities. Religious orientation and attending church is inversely associated with internalizing symptoms (Le, Tov, & Taylor, 2007; Rasic, Kisely, & Langille, 2011) and aggression (Abbotts, Williams, Sweeting, & West, 2004; Leach, Berman, & Eubanks, 2008).

School satisfaction serves as a protective factor that was associated with decreased depressive symptoms (Eamon, 2002; Witherspoon et al., 2009), whereas low levels of school satisfaction were significantly associated with aggressive acts such as carrying weapons and physical fighting (Valois, Paxton, Zullig, & Huebner, 2006).

Hypotheses for Current Study

The overarching thesis for the current study was that youth who have access to many protective factors across multiple microsystems (i.e., home, school, and community) will report decreased rates of internalizing symptoms and aggression over time. In contrast, adolescents who face multiple risk factors will report increased rates of internalizing symptoms and aggression. Based on existing research, we tested the following hypotheses related to our thesis: (a) For demographic variables, being female, Latino, American Indian, older, from a single parent household, and having a low SES would be risk factors associated with increased rates of internalizing symptoms. Being male, younger, Latino, African American, American Indian, from a single parent household, and having a low SES would be associated with increased rates of aggression; (b) Protective factors including parent, friend, and teacher support, ethnic identity, religious orientation, school satisfaction, and future optimism will be inversely associated with

internalizing symptoms and aggression; (c) Risk factors in the form of parent–child conflict, school hassles, bullying victimization, peer rejection, peer pressure, and delinquent peers will be positively associated with internalizing symptoms and aggression; (d) School and neighborhood characteristics will have weaker effects than the more proximal microsystem effects. School size, teacher turnover, low school SES, neighborhood poverty, and single parent family structure will be risk factors positively associated with internalizing symptoms and aggression.

Method

Participants

Characteristics of the sample are displayed in Table 1. The final sample used in the analysis for internalizing symptoms comprised 3,715 observations at baseline, 3,981 observations at Wave 2, 4,839 observations at Wave 3, and 4,216 observations at Wave 4. The final sample used in the analysis for aggressive behavior was comprised of 3,735 observations at baseline, 3,999 observations at Wave 2 or 12 months after the baseline, 4,872 observations at Wave 3 or 24 months after the baseline, and 4,175 observations at Wave 4 or 36 months after the baseline. The racial/ethnic diversity of the sample mirrors that of the surrounding community and 27% ($n = 1,008$) of participants identified as White, 23% ($n = 859$) as African American, 30% ($n = 1,121$) as American Indian, 12% ($n = 448$) as mixed race/other, and 8% ($n = 299$) as Latino. About half of the sample was female (52%, $n = 1,942$), 93% ($n = 3,474$) of participants resided in a two-parent family, and more than two thirds of the sample (88%, $n = 3,287$) received free or reduced price lunch. The mean age of the sample at baseline was 12.77 years ($SD = 1.05$).

Procedures

The NC-ACE Rural Adaptation Project (RAP) is a 5-year longitudinal panel study of more than 6,500 students from 28 middle schools and 12 high schools in two rural, ethnically diverse, economically disadvantaged counties in North Carolina. Approval for this study was obtained from the Institutional Review Board of a major research university in the Southeastern United States. The data for the current study were collected annually in the spring of 2011, 2012, 2013, and 2014. In year 1, all middle-school students in grades 6 through 8, a complete census in county 1, were included in the sample. In county 2, a random sample of 40% of middle-school students was included in the study because of a larger student population. Following school district policies, county 1 incorporated the assessment as part of regular school procedures, whereas county 2 sent a letter home to parents and caregivers explaining the study; if parents and caregivers did not want their child to participate, they sent a letter to the school requesting nonparticipation and their child was removed from the study roster. Students were tracked as they moved through middle school and into high school. Therefore, the year 2 sample consisted of students in grades 6 through 9, the year 3 sample comprised students in Grades 6 through 10, and the year 4 sample had youth in grades 6 through 11. In addition, a new random sample of students in Grade 6 was added annually.

Each county had an identical data collection procedure and data were gathered using an online assessment tool. Students assented to participate by reading and electronically signing an assent screen. Students completed assessments in school computer labs. To maintain confidentiality, each participant had a unique identification number.

Measures

The School Success Profile (SSP; Bowen & Richman, 2008) is a 195-item youth self-report that measures perceptions and attitudes about school, friends, family, neighborhood, self, and health and well-being. The SSP has been administered to tens of thousands of students since its creation in 1993 and therefore its reliability and validity are well documented (Bowen & Richman, 2008). The current study used a modified version of the SSP, the School Success Profile Plus (SSP+), which included 152 of the SSP items and three additional subscales: (a) the Multigroup Ethnic Identity Measure (Phinney & Ong, 2007); (b) subscales from the Youth Self-Report (YSR), which is the adolescent version of the Child Behavior Checklist (Achenbach & Rescorla, 2001); and (c) the Conflict Behavior Questionnaire (CBQ; Prinz, Foster, Kent, & O'Leary, 1979) to measure parent–child conflict.

Dependent Variables

Internalizing symptoms. Internalizing symptoms were measured with seven items from the YSR (Achenbach & Rescorla, 2001) that assess symptoms of anxiety and depression. Example items included: “I often feel sad” and “I often feel nervous or tense.” Items were rated on a 3-point Likert scale (*not like me, a little like me, and a lot like me*) and Cronbach's alpha was .92 in this sample.

Aggression. Aggressive behavior was measured using a modified 12-item aggression subscale from the Youth Self Report (YSR; Achenbach & Rescorla, 2001). Example items included: “I get in many fights” and “I break rules at home, school, or elsewhere.” Each item was rated on a 3-point Likert scale (*not like me, a little like me, and a lot like me*); Cronbach's alpha was .90 in this sample.

Time varying covariates. Time varying covariates were selected based on past research examining internalizing symptoms (Smokowski et al., 2014) and aggression (Smokowski, Guo, Cotter, & Evans, in press) in rural youth. Based on this past research, we believe that the selected variables represent salient risk factors for internalizing symptoms and aggressive behavior. One variable from each ecological microsystem level (individual, family, peer, school) was selected as a time varying covariate. Internalizing symptoms were used as a time varying covariate in the aggression model and aggression was used as a time varying covariate in the internalizing model; these variables were included given the complex association between these dimensions of behavioral health.

Parent–child conflict (family microsystem). Parent–child conflict was measured using 10 of the 20 items from the

Table 1. Sample Descriptive and Estimated HLM Exponentiated Coefficients of Internalizing Aggression

| Fixed and random effects | Baseline descriptives | | Outcomes | |
|--|-----------------------|-------|----------------------|-------------------|
| | % or mean | SE | Internalizing exp(B) | Aggression exp(B) |
| Fixed effect | | | | |
| Level 1: Time | | | | |
| Time (months since baseline) | | | 1.000 | 1.000 |
| School hassles (time-varying) | 1.49 | .008 | 1.109*** | 1.063*** |
| Internalizing symptoms (time-varying) | 1.43 | .008 | | 1.227*** |
| Aggressive behavior (time-varying) | 1.33 | .006 | 1.391*** | |
| Parent-child conflict (time-varying) | 2.00 | .040 | 1.030*** | 1.011*** |
| Peer rejection (time-varying) | 1.29 | .007 | 1.050*** | 1.031*** |
| Level 2: Individual | | | | |
| Race (White) | | | | |
| African American | .23 | .007 | 1.003 | 1.010 |
| Hispanic | .08 | .004 | 1.051*** | .971** |
| Native American | .30 | .007 | .993 | 1.007 |
| Mixed race and other | .12 | .005 | 1.017 | 1.007 |
| Gender (male) | | | | |
| Female | .52 | .008 | 1.089*** | 1.013** |
| Age at baseline | | | | |
| Age at baseline | 12.77 | .017 | 1.005 | 1.001 |
| Receipt of free/reduced lunch (No) | | | | |
| Yes | .88 | .006 | 1.039*** | .999 |
| Family structure (Other) | | | | |
| Two-parent family | .93 | .004 | 1.017 | .981* |
| Ethnic identity | | | | |
| Ethnic identity | 3.31 | .013 | 1.004 | .990** |
| Religious orientation | | | | |
| Religious orientation | 2.31 | .009 | 1.005 | .972*** |
| School satisfaction | | | | |
| School satisfaction | 2.38 | .008 | .998 | .954*** |
| Bullying victimization | | | | |
| Bullying victimization | .23 | .007 | 1.021** | .966*** |
| Future optimism | | | | |
| Future optimism | 3.47 | .008 | .984* | .997 |
| Parent support | | | | |
| Parent support | 2.68 | .008 | .973*** | 1.013* |
| Teacher support | | | | |
| Teacher support | 3.17 | .009 | 1.016** | 1.009 |
| Friend support | | | | |
| Friend support | 2.48 | .009 | .992 | 1.020*** |
| Delinquent friends | | | | |
| Delinquent friends | 1.38 | .007 | .982** | 1.107*** |
| Peer pressure | | | | |
| Peer pressure | 1.31 | .007 | 1.032*** | 1.008 |
| Level 3: School and neighborhood | | | | |
| School size | | | | |
| School size | 510.2 | 3.870 | 1.000 | 1.000* |
| % of students receiving free/reduced lunch | | | | |
| % of students receiving free/reduced lunch | 77.46 | .160 | 1.001 | .999 |
| % of American Indian students in school | | | | |
| % of American Indian students in school | 32.23 | .500 | 1.000 | 1.000* |
| % of African American students in school | | | | |
| % of African American students in school | 27.58 | .299 | .999 | 1.000 |
| % School students at grade level in reading | | | | |
| % School students at grade level in reading | 58.01 | .152 | 1.001 | .999* |
| % School students at grade level in math | | | | |
| % School students at grade level in math | 75.42 | .116 | .999 | 1.001 |
| % of teacher turnover | | | | |
| % of teacher turnover | 11.18 | .145 | 1.000 | 1.000 |
| % of residents below poverty line | | | | |
| % of residents below poverty line | 30.13 | .195 | 1.001 | .999* |
| % of residents age 25+ with 9th through 12th grade education no diploma | | | | |
| % of residents age 25+ with 9th through 12th grade education no diploma | 16.69 | .092 | 1.000 | 1.002** |
| % of family households with single female head, no husband | | | | |
| % of family households with single female head, no husband | 21.49 | .122 | 1.000 | .999* |
| Short term out of school suspensions per 100 students | | | | |
| Short term out of school suspensions per 100 students | 38.60 | .377 | 1.000* | 1.000 |
| Intercept | | | .531*** | .833** |
| Random effect (variance component) | | | | |
| Level 3 intercept | | | 0 | 0 |
| Level 2 intercept | | | .01*** | .01*** |
| Model Wald chi-squares (df) shown by one imputed file | | | 9854.68 (34) | 8357.09 (34) |
| Number of students | | | | |
| At wave 1 (time = 0 month) | | | 3,715 | 3,735 |
| At wave 2 (time = 12 months) | | | 3,981 | 3,999 |
| At wave 3 (time = 24 months) | | | 4,839 | 4,872 |
| At wave 4 (time = 36 months) | | | 4,216 | 4,175 |
| Number of schools at wave 1 (time = 0 month) | | | 28 | 28 |

Note. Results are based on the natural logarithm of the dependent variables. exp(B) is the estimation based on 15 imputed files. Reference group for categorical variables is shown in parenthesis after variable name.

* $p < .05$. ** $p < .01$. *** $p < .001$, two-tailed for nondirectional hypothesis test.

Conflict Behavior Questionnaire (CBQ; Prinz et al., 1979). This scale assessed the degree of conflict in the parent–child relationship. Example items included: “At least three times a week, my parent(s) and I get angry at each other” and “My parent(s) put me down.” The possible response options for each item were *true* or *false* and the Cronbach’s alpha reliability was .85 in this sample.

Perceived peer rejection (peer microsystem).

Perceived peer rejection was measured with a three-item scale (Bowen & Richman, 2008). Example items included: “I am made fun of by my friends” and “I wish my friends would show me more respect.” Each item was rated on a 3-point Likert Scale (*not like me, a little like me, or a lot like me*) and the Cronbach’s alpha reliability was .80 in this sample.

School hassles (school microsystem). The 13-item School Hassles Scale (Bowen & Richman, 2008) assessed the frequency with which students have endured peer harassment at school over the past 30 days. Example items included: “Someone treated you in a disrespectful way” and “Someone at school pushed, shoved, or hit you.” Each item was measured on a three-point Likert Scale (*never, once or twice, or more than twice*) and the Cronbach’s alpha reliability was .93 in this sample.

Individual Level Predictors

Demographic variables. Demographic variables included gender (male was the reference group) and age at baseline measured in years. Race was coded as four dichotomous variables Latino, African American, American Indian, and Mixed race (White students were the references group). Receipt of free or reduced price lunch was used as a proxy for socioeconomic status. Family structure was dichotomized as a two-parent household or another type of family situation.

Microsystem risk factors that increase internalizing symptoms and aggression.

Bullying victimization. Bullying victimization was measured by a dichotomized variable that asked students: “During the past 12-months, have you ever been bullied on school property?”

Delinquent friends. Association with delinquent friends was measured with a nine-item scale that measured the degree to which the participant’s friends engaged in delinquent activities (Bowen & Richman, 2008). Example items included “I have friends who get in trouble with the police” and “I have friends who cut classes.” Each item was rated on a 3-point Likert Scale (*not like me, a little like me, or a lot like me*) and the Cronbach’s alpha reliability was .92.

Peer pressure. Peer pressure was measured with a five-item scale (Bowen & Richman, 2008). Example items included “I let my friends talk me into doing things I really don’t want to do” and “I tend to go along with the crowd.” Each item was rated on a 3-point Likert Scale (*not like me, a little like me, or a lot like me*); Cronbach’s alpha reliability was .83 in this sample.

School characteristics. School level variables were obtained from administrative data and included: school size, percentage of students receiving free or reduced price lunch, percentage of American Indian and African American students, percentage of

students at or above grade level in reading and math, teacher turnover rate, and number of short-term suspensions per 100 students.

Neighborhood characteristics. Neighborhood level variables were collected from publically available census data from 2010 and included: percent of residents living below the poverty line, percent of residents age 25 or over with some high school education but no diploma, and percent of single, female headed households.

Microsystem protective factors that decrease internalizing symptoms and aggression.

Ethnic identity. The six-item Multigroup Ethnic Identity Measure (MEIM; Phinney & Ong, 2007) was used to measure ethnic identity. Example items included “I have a strong sense of belonging to my own ethnic group,” and “I feel a strong attachment towards my ethnic group.” Each item was rated on a 5-point Likert scale (*strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree*) and Cronbach’s alpha reliability was .95 in this sample.

Religious orientation. The importance of religion in participants’ lives was measured with a three-item scale (Bowen & Richman, 2008). Items included “My religious faith gives me strength” and “My religious faith influences the decisions I make.” Each item was rated on a 3-point Likert Scale (*not like me, a little like me, or a lot like me*) and the Cronbach’s alpha reliability was .93 in this sample.

School satisfaction. School satisfaction was measured with a seven-item scale (Bowen & Richman, 2008). Items included “I enjoy going to this school” and “I get along well with teachers at this school.” Each item was rated on a 3-point Likert Scale (*not like me, a little like me, or a lot like me*) and the Cronbach’s alpha reliability was .88 in the current sample.

Parent support. The five-item Parent Support scale (Bowen & Richman, 2008) measured the frequency over the past 30 days that an adult in the child’s home provided emotional support. Example items included “How often did the adults in your home let you know that you were loved?” and “How often did the adults in your home tell you that you did a good job?” Each item was rated on a 3-point Likert Scale (*never, once or twice, or more than twice*) and the Cronbach’s alpha reliability was .94 in this sample.

Friend support. Friend Support was measured with a five-item scale (Bowen & Richman, 2008) that gauged students’ perceptions of how supportive their friends are. Example items included “I can count on my friends for support” and “I can trust my friends.” Each item was rated on a 3-point Likert Scale (*not like me, a little like me, or a lot like me*) and the Cronbach’s alpha reliability was .94 in this sample.

Teacher support. Teacher support was measured with an eight-item scale (Bowen & Richman, 2008). Items included “My teachers care about me” and “My teachers give me a lot of encouragement.” Each item was rated on a 4-point Likert scale (*strongly disagree, disagree, agree, or strongly agree*). Cronbach’s alpha reliability was .92 in the current sample.

Future optimism. Future optimism was assessed with the 12-item Future Optimism Scale (Bowen & Richman, 2008) that measures expectations for future success. Example items included “When I think about my future, I feel very positive” and “I see myself accomplishing great things in life.” Each item was rated on

a 4-point Likert scale (*strongly disagree*, *disagree*, *agree*, and *strongly agree*). Cronbach's alpha reliability was .97 in this sample.

Analytic Plan

The current study aims to analyze students' changes in internalizing behavior and aggression over a 3-year study period based on four waves of panel data. Only students who provided data for at least two waves of data were included. Students who entered the study at Wave Four were excluded because they only provided one time point of data. In the data, multiple observations of internalizing and aggression score were taken on each student over a period of time. The nesting structure, with time nested in students nested in schools, violates the assumption of independence of observations, which threatens the statistical conclusion validity in the form of underestimated standard errors and spurious inferences (Raudenbush & Bryk, 2002). Thus, we employed hierarchical linear modeling (HLM) to adjust the standard errors. Using HLM helps to understand how students change over time and how this change may be related to key variables at student and school levels. Following the procedures outlined in Raudenbush and Bryk (2002), the models were built up from the time (first) level to higher levels and considered the impact of random slopes last. Although the random effects at the school level for both internalizing and aggression models are extremely small and are not statistically significant, we continued to use a three-level HLM model because it does not hurt the model estimation (Guo, 2005; Raudenbush & Bryk, 2002) and it is consistent with the ecological conceptual model.

The first level consisted of the internalizing or aggression scores at four time points. We chose four time-varying variables in level 1 for each model based on the goodness-of-fit of preliminary analyses and the importance of these variables from the study's conceptual model ($p = 5$). Supported by prior research and the conceptual model, the four time-varying covariates we used are the most important predictors of outcome change from different microsystems: school hassles, internalizing/aggressive behavior, parent-child conflict, and peer rejection. These covariates represent school experiences, individual behavior, family relationships, and peer social status. All of them are negative microsystem transactions that can lead to disengagement. Because the dependent variables were skewed, which violates HLM's assumption about normality distribution of outcome variables, we took the natural logarithm of both dependent variables as is the convention in linear modeling in econometrics (Greene, 2003). We reported the exponent of the estimated coefficient [$\exp(B)$] in Table 1 to ease the burden of interpretation of findings.

$$\ln(Y_{itj}) = \beta_{0ij} + \beta_{1ij}(\text{Time})_{itj} + \sum_{p=2}^p \beta_{2ij}(TV)_{pitj} + \gamma_{itj} \quad (1)$$

where $\ln(Y_{itj})$ is the outcome variable of interest, $(\text{Time})_{itj}$ is the time variable measured in months from baseline or Wave 1, $(TV)_{pitj}$ are $p - 1$ time-varying variables, γ_{itj} is a residual term incorporating the temporal random effect for the i th student from the j th school at time t .

At level 2, the fixed effects (i.e., β_{0ij} , β_{1ij} , and β_{2ij}) become a set of outcome variables, which are then regressed on different

students' characteristics. We chose 15 predictors ($Q = 15$), which can be categorized into the following three categories: (a) demographics, (b) microsystem protective factors, and (c) microsystem risk factors.

$$\beta_{0ij} = \pi_{00j} + \sum_{q=1}^Q \pi_{0q0}(X)_{qij} + u_{0ij} \quad (2a)$$

$$\beta_{1ij} = \gamma_{100} \quad (2b)$$

$$\beta_{2ij} = \gamma_{p00} \quad (2c)$$

where $(X)_{qij}$ are Q student-level variables, u_{0ij} is a random effect for the i th student from the j th school.

At level 3, the random intercept of Equation (2a) was regressed on characteristics of schools and neighborhood. We used 11 school or neighborhood level variables to incorporate the influence of macro settings on students' psychological change ($R = 11$).

$$\pi_{00j} = \gamma_{000} + \sum_{r=1}^R \gamma_{00r}(W)_{rj} + e_{00j} \quad (3a)$$

$$\pi_{0q0} = \gamma_{0q0} \quad (3b)$$

where $(W)_{rj}$ are R school-level variables, and e_{00j} is a random effect for the j th school.

The combined equation is as follows.

$$\ln(Y_{itj}) = \gamma_{000} + \gamma_{100}(\text{Time})_{itj} + \sum_{p=2}^p \gamma_{p00}(TV)_{pitj} + \sum_{q=1}^Q \gamma_{0q0}(X)_{qij} + \sum_{r=1}^R \gamma_{00r}(W)_{rj} + u_{00j} + r_{0ij} + e_{itj}$$

There were missing values in both the dependent and independent variables. Because the data were missing at random (MAR), we conducted multiple imputation analysis before analyzing the data to reduce the bias from the missing data. All analysis variables were included in the process of multiple imputation to ensure the representativeness of covariance structure among these variables in the imputed data. According to Rubin's rule (Little & Rubin, 2002), the HLM analyses described above were conducted on each of the 15 imputed data sets, and then the multiple analysis were combined to yield a single set of results. The findings presented in Table 1 show the aggregated results.

Results

Results show that on the aggression score, 51.9% of the variation is attributable to temporal change, 47.1% is attributable to students, and 0.8% is attributable to schools. On the internalizing score, 54.2% of the variation is attributable to temporal change, 45% is attributable to students, and 0.8% is attributable to schools. The results reveal two important findings: (a) there is a high level of clustering of students and of occasions, because 47.1% or 45% of the variation on externalizing score lies between students and 51.9% or 54.2% of the variation is attributable to occasions—both are nontrivial, and therefore, an HLM is necessary; and (b) the most important source of the variation comes from temporal change (51.9% or 54.2%), indicating that temporal change has a

large variability on the internalizing and aggression scores, while schools do not vary to a large degree.

Internalizing Model

Table 1 presents the sample descriptive statistics and the estimated HLM coefficients for internalizing symptoms. The internalizing model had an excellent fit to the data with a Wald chi-square of 8357.09 ($df = 34$) that was statistically significant at the .001 level. The results in Table 1 were aggregated using Rubin's Rule (Little & Rubin, 2002) with 15 imputed files. In general, the results for the internalizing model confirmed our hypotheses for the impact of predictor variables. Over time, students, on average, did not have any significant change in their internalizing score.

Demographics. For demographic predictors with all other factors held equal: (a) A Latino student's internalizing score was higher than a White student's score by 5.1% ($p < .001$); (b) A female student's internalizing score was 8.9% higher than that of a male student ($p < .001$); and (c) Students who received free and reduced price lunch had an internalizing score that was 3.9% higher than those who did not receive free and reduced price lunch ($p < .001$).

Protective factors. With all other factors held equal: (a) For every one-unit increase in future optimism, the internalizing score decreased 1.6% ($p < .05$); (b) For every one-unit increase in parent support, the internalizing score decreased 2.7% ($p < .001$); and (c) For every one-unit increase in teacher support, the internalizing scale increased 1.6% ($p < .01$).

Risk factors. Other variables being equal and at any point in time for the time-varying covariates: (a) For every one-unit increase in school hassles, the internalizing score increased by 10.9% ($p < .001$); (b) For every one-unit increase in aggression, the internalizing score increased by 39.1% ($p < .001$); (c) For every one-unit increase in parent-child conflict, the internalizing score increased 3.0% ($p < .001$); (d) For every one-unit increase in peer rejection, the internalizing score increased 5.0% ($p < .001$). In terms of risk factors that were not time varying: (a) A bullying victim's internalizing score was higher than that of a nonbully victim by 2.1% ($p < .01$); (b) For every one-unit increase in delinquent friends, the internalizing score decreased 1.8% ($p < .01$); and (c) For every one-unit increase in peer pressure, the internalizing score decreased 3.2% ($p < .001$). For school predictors with other factors held equal, for every one-student increase in short-term out of school suspensions, the internalizing score increased by 0.05% ($p < .05$).

Aggression Model

Table 1 presents the sample descriptive statistics and estimated HLM coefficients for aggression. The aggression model had an excellent fit to the data with a Wald chi-square of 9854.68 ($df = 34$) that was statistically significant at the .001 level. Over time, students, on average, did not have any significant change in their aggression score.

Demographics. For demographic predictors with all other factors held equal: (a) A Latino student's aggression score was lower than a White student's score by 2.9% ($p < .01$); (b) A female student's aggression score was higher than that of a male student by 1.3% ($p < .01$); and (c) Students from a two parent family had a lower aggression score by 1.9% ($p < .05$) compared with youth from one parent families.

Protective factors. With all other factors held equal: (a) For every one-unit increase in ethnic identity, the aggression score decreased 1.0% ($p < .01$); (b) For every one-unit increase in religious orientation, the aggression score decreased 2.8% ($p < .001$); (c) For every one-unit increase in school satisfaction, the aggression score decreased 4.6% ($p < .001$); (d) For every one-unit increase in parent support, the aggression score increased 1.3% ($p < .05$); and (e) For every one-unit increase in friend support, the aggression score increased 2.0% ($p < .001$).

Risk factors. Other variables being equal and at any point in time for the time varying covariates: (a) For every one-unit increase in school hassles, the aggression score increased by 6.3% ($p < .001$); (b) For every one-unit increase in internalizing symptoms, the aggression score increased 22.7% ($p < .001$); (c) For every one-unit increase in parent child conflict, the aggression score increased 1.1% ($p < .001$); (d) For every one-unit increase in peer rejection, the aggression score increased 3.1% ($p < .001$). For non-time-varying covariates: (a) A bullying victim's aggression score was lower than that of a nonbully victim by 3.4% ($p < .001$); and (b) For every one-unit increase in delinquent friends, the aggression score increased 10.7% ($p < .001$). For school variables, with other factors held equal: (a) For every one-student increase in school size, the aggression score increased by 0.05% ($p < .05$); (b) For every one-percentage-point increase in the school's percentage of American Indian students, the aggression score increased by 0.05% ($p < .05$); and (c) For every one-percentage-point increase in the percent of students at or above grade level in reading, the aggression score decreased 0.1% ($p < .05$). For neighborhood variables, with other factors held equal: (a) Every one-percentage-point increase in the percentage of residents below poverty line decreases the aggression score by 0.1% ($p < .05$); (b) Every one-percentage-point increase in the percentage of residents aged 25 or older with no high-school diploma increases the aggression score by 0.2% ($p < .01$); and (c) Every one-percentage-point increase in the percentage of single, female headed households decreases the aggression score by 0.1% ($p < .05$).

Discussion

Demographic Variables

Given the stressors associated with acculturation (Schwartz, Zamboanga, & Jarvis, 2007; Smokowski & Bacallao, 2007, 2010), it is understandable that Latino youth reported higher levels of internalizing symptoms, but somewhat surprising that Latino youth in the current sample displayed lower rates of aggression. It is possible that the tight knit family structure often present in Latino families (Coohey, 2001) helped mitigate the stress of living as an immigrant, resulting in decreased aggression. Further, Latino families strictly enforce rules and any deviation from these rules is

viewed as a major transgression (Falicov, 1998). Aggression represents one such transgression, thus it is possible that Latino youth internalize their frustration rather than behaving aggressively in order to abide by family rules and norms. In the current rural community, Latino residents are the minority of the population and as a result might face racial discrimination or feel like outsiders; Latino youth might therefore refrain from acting aggressively to avoid calling attention to themselves and their minority status. Taken together, the current findings on rates of internalizing symptoms and aggression in Latino youth point to the need for additional research on this racial group across different racial/ethnic contexts.

Also in partial support of the hypothesis, compared with males, females reported significantly higher levels of both internalizing symptoms and aggression. It is well documented that, compared with males, females of all ages display higher rates of internalizing symptoms (Negri & Susman, 2011; Woodward & Fergusson, 2001) and this relationship appears to hold in a rural sample of diverse adolescents. Past research documents the increased aggression of males relative to females (Peterson, Esbensen, Taylor, & Freng, 2007; Frisell, Pawitan, Langstrom, & Lichtenstein, 2012), however the opposite relationship was present in this study. The current measure of aggression focused on aggression in the form of rule breaking and verbal aggression, rather than physical aggression. Perhaps the lack of items assessing physical aggression accounts for the gender differences. Further, females are more aggressive in certain situations, such as in heterosexual dating relationships (Archer, 2000). Perhaps the females in the current sample answered the aggression items in relation to their dating partners. Because few previous studies have examined ethnically diverse samples in rural environments, this effect for female aggression should be further considered in future research.

Microsystem Protective Factors

In partial support of our hypothesis, microsystem protective factors in the form of ethnic identity, religious orientation, and school satisfaction were significantly associated with decreased aggression, but were not related to internalizing symptoms. Past research confirms that these protective factors are related to decreased aggression (Flanagan et al., 2011; Leach et al., 2008; Valois et al., 2006), however the current study extends these findings to rural environments. The reverse was true for future optimism, which was related to decreased internalizing symptoms, but not aggression. Engagement with one's ethnic group, religious group, and school provides youth with connections to supportive peers and adults and gives them the opportunity to participate in prosocial activities, leaving them little time to engage in aggressive and deviant acts. Further, according to social control theory, the feeling of belonging fostered by connections to one's ethnic group, religion, and school are social bonds that serve to constrain deviant behavior such as aggression (Hirschi, 1969). However, these protective factors were not inversely related to rates of internalizing symptoms, suggesting that the symptoms of depression and anxiety experienced by youth in the current sample were pervasive, regardless of ties to community groups and social structures. Further, given the rural setting, it is likely that many of the youth suffering from internalizing symptoms did not have access to needed mental health services (Radnovich & Wiens, 2012). The

fact that future optimism was associated with decreased internalizing symptoms is not surprising. Youth with hope and positive sentiments about the future likely feel these same emotions in the present, qualities that stave off symptoms of depression and anxiety. Clearly, engagement in the school and community microsystems provides youth with support and a feeling of belonging that seems to decrease rates of aggression. However, these protective factors did not buffer against internalizing symptoms, again highlighting the need for more formal intervention to combat depression and anxiety in at risk rural youth. Overall, although the aforementioned protective factors in youth's microsystems served to significantly decrease aggression and internalizing symptoms, they decreased these variables by between 1.0% and 4.6%, indicating the need for future researchers to continue investigating what other protective factors might have a greater impact on mental health functioning.

The microsystem protective factor of parent support had a somewhat counterintuitive impact on mental health. In line with past research, parent support was associated with a significant decrease in internalizing symptoms (Arim et al., 2011), but a significant increase in aggression. Perhaps in the current sample, parent support represented overbearing parents who enforced a plethora of rules in an attempt to curtail youths' burgeoning autonomy. In response to this intense supervision, youth may have acted out aggressively as a way of obtaining independence. The need for independence might be especially strong for rural adolescents who do not have access to public transportation or the many after school programs available in urban areas, leaving rural youth stranded at home and dependent upon parents. However, the presence of parental rules, restrictions, and support also served as an indicator of parental investment, signaling to the child that he or she was valued and loved, thus decreasing internalizing symptoms. Alternately, in such a large sample, there may be two processes going on; aggressive adolescents garner more parental support because parents are concerned about their problematic behavior. At the same time, parents who provide support help to mitigate adolescent anxiety and depression.

Also counter to our hypothesis, friend support was associated with increased aggression. Given the strong influence that friends have on adolescent behavior (Bagwell & Schmidt, 2011), it is possible that the friend support in the current study came from aggressive peer groups and thus served to increase aggression. Further, rural youth might have limited access to social companions and could be forced to form bonds with aggressive peers because of a lack of other social companions; support from aggressive peers may seem better than being isolated and without friends.

Surprisingly, friend support did not serve to decrease internalizing symptoms, reinforcing the notion that in the current sample more intense intervention was needed to curtail symptoms of depression and anxiety. Teacher support was not associated with aggression, but was significantly related to increased internalizing symptoms. Perhaps youth experiencing depression and anxiety stand out to teachers as needing additional support; thus, teachers supply these troubled students with extra attention. If this is the case, teacher support is not the cause of internalizing symptoms, but represents a caring response to preexisting student depression and anxiety. Conversely, it is possible that youth who report high levels of teacher support may receive extra help because

they are struggling in the classroom, leading to increased internalizing symptoms. The enigmatic impact of social support on rural youth's internalizing symptoms and aggression warrants additional research.

Microsystem Risk Factors

As predicted, all of the time-varying covariates (i.e., school hassles, perceived peer rejection internalizing symptoms/aggression, parent-child conflict) representing risk factors across various microsystems were significantly associated with increased internalizing symptoms and aggression. The presence of school hassles and perceived friend rejection represent risk factors in the school and peer microsystems. Youth who are hassled at school and rejected by their friends are likely socially isolated and feel lonely and unsupported. Rejected youth often have faulty social information processing, which leads them to interpret innocuous behaviors as threats and they respond with aggression (Crick & Dodge, 1994). Indeed, past research confirms that rejected youth have poor mental health and high rates of aggression (Dodge et al., 2003; Lopez & DuBois, 2005). In the current study, school hassles represent a more intense form of friend rejection, which includes being physically, verbally, and relationally victimized by classmates in general and not just by friends. Therefore, youth experiencing school hassles begin to view school as a dangerous and lonely place, which might fuel symptoms of depression and anxiety and spark feelings of anger expressed as aggression. In the current rural community with limited resources, youth who were ostracized at school might not have had any other means of making friends (e.g., out of school, extracurricular activities, neighbors) and were left feeling like social outcasts which fueled depression, anxiety, and aggression.

In line with our hypothesis and past research, parent-child conflict was associated with increased internalizing symptoms and aggressive behaviors (Eichelsheim et al., 2010; Suldo et al., 2009). The presence of parent-child conflict deprives youth of the benefits of supportive and engaged parents. High levels of conflict

might indicate a lack of parental involvement, leaving youth feeling alone and isolated in the family microsystem. This isolation could translate into feelings of depression and anxiety and might fuel anger and resentment that is expressed as aggression. Further, the lack of community resources in rural areas could heighten the negative impact of parent-child conflict on adolescents because rural youth are not exposed to prosocial adults; in urban areas, youth have increased opportunities to connect with adult mentors at community centers or through neighborhood sports teams, resources that are minimal or unavailable in rural areas.

Interestingly, internalizing symptoms were one of the most significant predictors of aggression, and aggression was one of the most significant predictors of internalizing symptoms. Figure 1 displays the longitudinal relationship between internalizing problems and aggression scores. Over time, adolescents with high internalizing scores (higher than the median score) tended to increase their aggressive behavior while their peers with low internalizing scores (lower than the median score) decreased their aggressive behavior. This graph is nearly identical when the variables are switched; low aggression adolescents (lower than the median score) report decreases in internalizing problems over time whereas their high aggression peers (higher than the median score) display increases in internalizing problems over time. Past research has found a strong connection between both constructs (e.g., Crick et al., 2006; Kofler et al., 2011). The presence of internalizing symptoms and aggression represents poor mental health functioning that increases adolescent vulnerability to additional mental health issues. If youth are depressed and anxious, they are less able to control their anger and may behave aggressively. Conversely, if youth are aggressive, their aggression might serve to socially isolate them from friends and family, leading to feelings of depression and anxiety. The presence of internalizing symptoms and aggression creates a feedback loop that fuels poor mental health functioning that requires professional intervention and support that might not be available or accessible for rural youth.

Bullying victimization was associated with increased internalizing symptoms, but decreased aggression. It is well documented

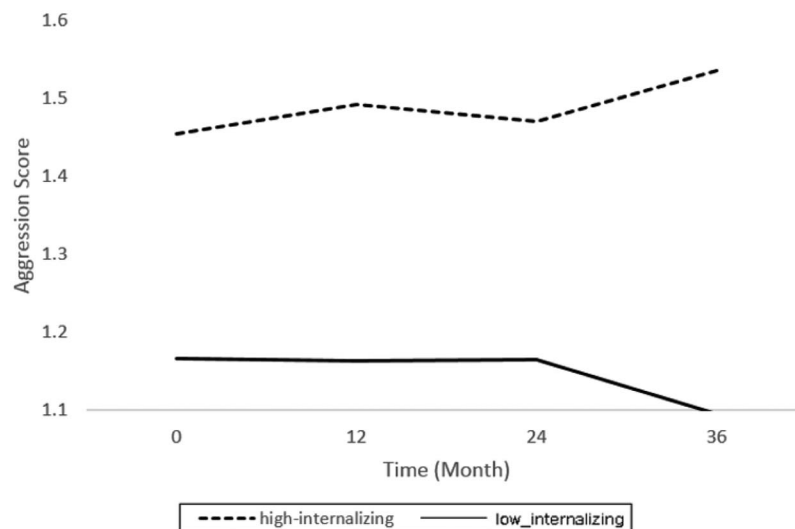


Figure 1. The longitudinal relationship between internalizing and aggression scores.

that, relative to nonvictimized youth, victims of bullying report increased rates of internalizing symptoms (Smokowski & Kopasz, 2005; Sweeting et al., 2006). It is interesting that school hassles resulted in increased aggression, but bullying victimization showed the opposite effect. Bullying victimization represents an intense form of school hassles that is repeated over time. In line with the theory of learned helplessness (Peterson, Maier, & Seligman, 1995), perhaps youth who are repeatedly hassled in the form of bullying initially attempt to fight back with aggression, but then become worn down and give up on trying to stop their victimization, resulting in decreased rates of aggression, but increased rates of depression and anxiety. Further, given the high rates of bullying victimization in rural schools (Dulmus, Theriot, Sowers, & Blackburn, 2004; Price, Chin, Higa-McMillan, Kim, & Frueh, 2013), it is possible that compared with urban schools, rural schools are less equipped to respond to episodes of bullying, leaving victims feeling alone and fueling internalizing symptoms.

The presence of delinquent friends was linked with increased aggression and decreased internalizing symptoms. Compared with youth without delinquent friends, youth who associate with delinquent friends are more likely to engage in delinquent acts (Haynie, 2002), which seems to translate into higher rates of aggression. Although having delinquent friends was viewed as a risk factor, it is possible that delinquent friends actually represent a source of “anti-social” social capital that connects youth to a peer group that provides social status and support, albeit antisocial in nature. Delinquent friends likely provide support and companionship, but rather than leading to prosocial outcomes, this support results in aggression and deviant behavior. However, youth benefit from this antisocial capital as evidenced by their decreased internalizing symptoms. Further research is needed to more fully understand the effect of antisocial capital, especially in rural areas with limited resources. Finally, peer pressure was associated with increased internalizing symptoms, but was not associated with aggression. Youth surrounded by peers who pressure them to break rules might begin to feel depressed and anxious. However, in a rural context with limited access to social supports, it might be difficult for youth to extricate themselves from these toxic friendships and avoid the youth who pressure them, leaving youth feeling trapped and depressed.

Taken together, findings indicate that microsystem risk factors had a more profound impact on internalizing symptoms and aggression than microsystem protective factors, highlighting the need for intervention in negative relationship dynamics. Applying these findings to multifaceted interventions targeting internalizing symptoms and aggression, it appears that interventions should be implemented in the home and school microsystems. At home, such interventions should focus on improving the parent–child relationship by bolstering parent support and decreasing parent–child conflict. Teaching parents how to appropriately discipline and support aggressive adolescents might also be important as a means of interrupting the connection between aggression and internalizing symptom; perhaps parents use overly harsh discipline when their teenagers act aggressively which serves to heighten internalizing symptoms. Interventions in the school microsystem should offer support to youth who are connected to deviant and delinquent peer groups. This multifaceted approach to combating internalizing symptoms and aggression is particularly important in rural areas where residents are often socially isolated and lack transpor-

tation. By implementing interventions both at home and school, a large number of rural adolescents and their families would benefit from much needed support.

School and Neighborhood Microsystem Variables

The more distal microsystem variables of school and neighborhood characteristics had a smaller impact on mental health outcomes compared to the microsystem risk and protective factors present in the home and peer group. A larger school size and an increased percent of American Indian students in school were associated with higher rates of aggression while an increased percent of students at or above grade level in reading was associated with decreased aggression. It is well established that larger schools have more crime and violence (Chen, 2008; Ferris & West, 2004), thus it follows that youth in larger schools might be more inclined to act aggressively as a form of self-protection. The presence of additional American Indian students might result in increased racial/ethnic tension that causes increased aggression. Alternately, American Indian adolescents may be clustered within overcrowded, large, and impoverished schools that generate more aggressive behavior.

In terms of neighborhood variables, confirming our hypothesis, aggression increased as the percentage of residents 25 or older without a high school diploma increased. Lack of education among residents in a neighborhood may be particularly toxic for child development, leaving adolescents to de-emphasize education and to seek alternative routes of financial well-being that require aggressive behavior. Contrary to our hypothesis, as the percentage of residents living below the poverty line and the percentage of single headed, female households increased, aggression decreased. Poverty and single parenthood increases a family’s stress level. Perhaps youth in the current study responded to this increased stress by trying to behave well and refrained from engaging in aggressive acts to prevent additional stress for their family. Single parents who are able to marshal family resilience have been noted as a key protective factor for high-risk adolescents in past studies (Smokowski, Reynolds, & Bezruczko, 1999). This effect highlights the dynamic that one, positive single parent may be better in enforcing family rules against aggressive behavior than two parents in conflict or a second parent who models poor behavior.

Limitations

The study’s findings must be understood in the context of specific limitations. Although the scales used to measure the dependent variables were empirically validated, internalizing symptoms and aggression are complex constructs. The internalizing scale did not assess clinical levels of depression or anxiety and the aggression scale assessed verbal as well as physical aggression. Future studies should consider using scales that measure clinical levels of anxiety and depression and examine predictors of verbal and physical aggression separately to determine if unique factors influence these distinct forms of aggression. Second, despite the fact that researchers took every precaution to make the survey a confidential experience, participants might have been influenced by the presence of their peers. Ideally, participants should complete sur-

veys privately, however this was not feasible given the large sample size. Third, caution is warranted in generalizing results to urban areas and less racially/ethnic diverse rural areas given our unique sample of nearly equal proportions of different racial/ethnic groups from a low income, rural county. Fourth, peer rejection was assessed by measuring participants' perceptions of rejection by the peer group as opposed to the more traditional peer nomination method used to assess peer rejection. Participants' perceptions of rejection might differ from that of their classmates, however peer nominations were beyond the scope of the current study. Further, bullying victimization was assessed with a dichotomous variable as opposed to a longer scale that measured the severity of victimization and various forms of victimization (e.g., verbal, physical, relational). Finally, because this was a correlational study in a naturalistic setting, the direction of effects might be bidirectional or mediated by omitted factors, which is a common limitation in social sciences research. Future research is needed to ascertain causal relationships.

Conclusion

The overarching hypothesis for the current study was that youth who are exposed to microsystem protective factors across multiple ecological levels would report decreased rates of internalizing symptoms and aggression. The opposite was hypothesized for the presence of microsystem risk factors, which were hypothesized to result in increased rates of internalizing symptoms and aggression. These hypotheses were partially supported. Microsystem risk factors in the form of school hassles, parent-child conflict, peer rejection, and delinquent friends were associated with increased internalizing symptoms and aggression, highlighting the deleterious effect of unsupportive relationships. Although microsystem protective factors in the form of ethnic identity, religious orientation, and school satisfaction were associated with decreased aggression, they were not associated with internalizing symptoms. Taken together, findings indicate microsystem risk factors undermine successful adolescent mental health functioning and that social support in the immediate microsystem is not sufficient to protect youth from symptoms of depression and anxiety. The strongest relationship found was between internalizing symptoms and aggression. Future research should continue to map how these two different areas of adolescent behavior and mental health are connected. Similarly, multifaceted interventions should address depression, anxiety, and aggression within the same program because these areas of adolescent behavior and mental health are so intricately related.

Keywords: adolescence; aggression; internalizing symptoms; rural

References

- Abbotts, J. E., Williams, R. G. A., Sweeting, H. N., & West, P. B. (2004). Is going to church good or bad for you? Denomination, attendance and mental health of children in West Scotland. *Social Science & Medicine*, 58, 645–656. [http://dx.doi.org/10.1016/S0277-9536\(03\)00283-1](http://dx.doi.org/10.1016/S0277-9536(03)00283-1)
- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for ASEBA school-age forms and profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth & Families.
- Allen, J. P., Porter, M. R., & McFarland, F. C. (2006). Leaders and followers in adolescent close friendships: Susceptibility to peer influence as a predictor of risky behavior, friendship instability, and depression. *Development and Psychopathology*, 18, 155–172. <http://dx.doi.org/10.1017/S0954579406060093>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- Ang, R. P., Huan, V. S., Chan, W. T., Cheong, S. A., & Leaw, J. N. (2015). The role of delinquency, proactive aggression, psychopathy and behavioral school engagement in reported youth gang membership. *Journal of Adolescence*, 41, 148–156. <http://dx.doi.org/10.1016/j.adolescence.2015.03.010>
- Archer, J. (2000). Sex differences in aggression between heterosexual partners: A meta-analytic review. *Psychological Bulletin*, 126, 651–680.
- Arim, R. G., Dahinten, V. S., Marshall, S. K., & Shapka, J. D. (2011). An examination of the reciprocal relationships between adolescents' aggressive behaviors and their perceptions of parental nurturance. *Journal of Youth and Adolescence*, 40, 207–220. <http://dx.doi.org/10.1007/s10964-009-9493-x>
- Bagwell, C. L., & Schmidt, M. E. (2011). *Friendships in childhood and adolescence*. New York, NY: Guilford Press.
- Beeri, A., & Lev-Wiesel, R. (2012). Social rejection by peers: A risk factor for psychological distress. *Child and Adolescent Mental Health*, 17, 216–221. <http://dx.doi.org/10.1111/j.1475-3588.2011.00637.x>
- Benhorin, S., & McMahon, S. D. (2008). Exposure to violence and aggression: Protective roles of social support among urban African American youth. *Journal of Community Psychology*, 36, 723–743. <http://dx.doi.org/10.1002/jcop.20252>
- Bernal, M. E., & Knight, G. P. (1993). *Ethnic identity: Formation and transmission among Latinos and other minorities*. Albany, NY: SUNY Press.
- Bierman, K. L., Coie, J., Dodge, K., Greenberg, M., Lochman, J., McMahon, R., . . . Conduct Problems Prevention Research Group. (2013). School outcomes of aggressive-disruptive children: Prediction from kindergarten risk factors and impact of the fast track prevention program. *Aggressive Behavior*, 39, 114–130. <http://dx.doi.org/10.1002/ab.21467>
- Birmaher, B., Ryan, N. D., Williamson, D. E., Brent, D. A., Kaufman, J., Dahl, R. E., . . . Nelson, B. (1996). Childhood and adolescent depression: A review of the past 10 years. Part I. *Journal of the American Academy of Child & Adolescent Psychiatry*, 35, 1427–1439. <http://dx.doi.org/10.1097/00004583-199611000-00011>
- Bowen, G. L., & Richman, J. M. (2008). *The school success profile*. Chapel Hill, NC: University of North Carolina.
- Burton, K. A., Florell, D., & Gore, J. S. (2013). Differences in proactive and reactive aggression in traditional bullies and cyberbullies. *Journal of Aggression, Maltreatment & Trauma*, 22, 316–328. <http://dx.doi.org/10.1080/10926771.2013.743938>
- Camodeca, M., & Goossens, F. A. (2005). Aggression, social cognitions, anger and sadness in bullies and victims. *Journal of Child Psychology and Psychiatry*, 46, 186–197. <http://dx.doi.org/10.1111/j.1469-7610.2004.00347.x>
- Chen, G. (2008). Communities, students, schools, and school crime: A confirmatory study of crime in U.S. high schools. *Urban Education*, 43, 301–318. <http://dx.doi.org/10.1177/0042085907311791>
- Cicchetti, D. (1990). A historical perspective on the discipline of developmental psychopathology. In J. Rolf, A. Masten, D. Cicchetti, K. Nuechterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 2–28). New York, NY: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511752872.003>
- Coohey, C. (2001). The relationship between familism and child maltreatment in Latino and Anglo families. *Child Maltreatment*, 6, 130–142. <http://dx.doi.org/10.1177/1077559501006002005>
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information processing mechanisms in children's social adjustment.

- Psychological Bulletin*, 115, 74–101. <http://dx.doi.org/10.1037/0033-2909.115.1.74>
- Crick, N. R., Ostrov, J. M., & Werner, N. E. (2006). A longitudinal study of relational aggression, physical aggression, and children's social-psychological adjustment. *Journal of Abnormal Child Psychology*, 34, 127–142. <http://dx.doi.org/10.1007/s10802-005-9009-4>
- Dodge, K. A., Lansford, J. E., Burks, V. S., Bates, J. E., Pettit, G. S., Fontaine, R., & Price, J. M. (2003). Peer rejection and social information-processing factors in the development of aggressive behavior problems in children. *Child Development*, 74, 374–393. <http://dx.doi.org/10.1111/1467-8624.7402004>
- Dulmus, C. N., Theriot, M. T., Sowers, K. M., & Blackburn, J. A. (2004). Student reports of peer bullying victimization in a rural school. *Stress, Trauma and Crisis: An International Journal*, 7, 1–16. <http://dx.doi.org/10.1080/15434610490281093>
- Eamon, M. K. (2002). Influences and mediators of the effects of poverty on young adolescent depressive symptoms. *Journal of Youth and Adolescence*, 31, 231–242. <http://dx.doi.org/10.1023/A:1015089304006>
- Eichelsheim, V. I., Buist, K. L., Deković, M., Wissink, I. B., Frijns, T., van Lier, P. A. C., . . . Meeus, W. H. J. (2010). Associations among the parent-adolescent relationship, aggression and delinquency in different ethnic groups: A replication across two Dutch samples. *Social Psychiatry and Psychiatric Epidemiology*, 45, 293–300. <http://dx.doi.org/10.1007/s00127-009-0071-z>
- Espelage, D. L., Holt, M. K., & Henkel, R. R. (2003). Examination of peer-group contextual effects on aggression during early adolescence. *Child Development*, 74, 205–220. <http://dx.doi.org/10.1111/1467-8624.00531>
- Essau, C. A., Lewinsohn, P. M., Olaya, B., & Seeley, J. R. (2014). Anxiety disorders in adolescents and psychosocial outcomes at age 30. *Journal of Affective Disorders*, 163, 125–132. <http://dx.doi.org/10.1016/j.jad.2013.12.033>
- Falicov, C. J. (1998). *Latino families in therapy*. New York, NY: Guilford Press.
- Ferguson, C. J., San Miguel, C., & Hartley, R. D. (2009). A multivariate analysis of youth violence and aggression: The influence of family, peers, depression, and media violence. *The Journal of Pediatrics*, 155, 904–908.e3. <http://dx.doi.org/10.1016/j.jpeds.2009.06.021>
- Ferris, J. S., & West, E. G. (2004). Economies of scale, school violence, and the optimal size of schools. *Applied Economics*, 36, 1677–1684. <http://dx.doi.org/10.1080/0003684042000266856>
- Flanagan, T., Iarocci, G., D'Arrioso, A., Mandour, T., Tootoosis, C., Robinson, S., & Burack, J. A. (2011). Reduced ratings of physical and relational aggression for youths with a strong cultural identity: Evidence from the Naskapi people. *Journal of Adolescent Health*, 49, 155–159. <http://dx.doi.org/10.1016/j.jadohealth.2010.11.245>
- Frisell, T., Pawitan, Y., Långström, N., & Lichtenstein, P. (2012). Heritability, assortative mating and gender differences in violent crime: Results from a total population sample using twin, adoption, and sibling models. *Behavior Genetics*, 42, 3–18. <http://dx.doi.org/10.1007/s10519-011-9483-0>
- Green, E. J., Myrick, A. C., & Crenshaw, D. A. (2013). Toward secure attachment in adolescent relational development: Advancements from sandplay and expressive play-based interventions. *International Journal of Play Therapy*, 22, 90–102. <http://dx.doi.org/10.1037/a0032323>
- Greene, W. H. (2003). *Econometric analysis* (5th ed.). Upper Saddle River, NJ: Prentice Hall.
- Guo, S. (2005). Analyzing grouped data with hierarchical linear modeling. *Children and Youth Services Review*, 27, 637–652. <http://dx.doi.org/10.1016/j.chilyouth.2004.11.017>
- Haynie, D. L. (2002). Friendship networks and delinquency: The relative nature of peer delinquency. *Journal of Quantitative Criminology*, 18, 99–134. <http://dx.doi.org/10.1023/A:1015227414929>
- Hirschi, T. (1969). *Causes of delinquency*. Los Angeles, CA: University of California Press.
- Kaltiala-Heino, R., Rimpelä, M., Marttunen, M., Rimpelä, A., & Rantanen, P. (1999). Bullying, depression, and suicidal ideation in Finnish adolescents: School survey. *British Journal of Medicine*, 319, 348–351. <http://dx.doi.org/10.1136/bmj.319.7206.348>
- Kerr, D. C. R., Reinke, W. M., & Eddy, J. M. (2013). Trajectories of depressive symptoms and externalizing behaviors across adolescence: Associations with histories of suicide attempt and ideation in early adulthood. *Suicide and Life-Threatening Behavior*, 43, 50–66. <http://dx.doi.org/10.1111/j.1943-278X.2012.00127.x>
- Kiang, L., Witkow, M. R., & Champagne, M. C. (2013). Normative changes in ethnic and American identities and links with adjustment among Asian American adolescents. *Developmental Psychology*, 49, 1713–1722. <http://dx.doi.org/10.1037/a0030840>
- Kofler, M. J., McCart, M. R., Zajac, K., Ruggiero, K. J., Saunders, B. E., & Kilpatrick, D. G. (2011). Depression and delinquency covariation in an accelerated longitudinal sample of adolescents. *Journal of Consulting and Clinical Psychology*, 79, 458–469. <http://dx.doi.org/10.1037/a0024108>
- La Greca, A. M., & Harrison, H. M. (2005). Adolescent peer relations, friendships, and romantic relationships: Do they predict social anxiety and depression? *Journal of Clinical Child and Adolescent Psychology*, 34, 49–61. http://dx.doi.org/10.1207/s15374424jccp3401_5
- Le, T. N., Tov, W., & Taylor, J. (2007). Religiousness and depressive symptoms in five ethnic adolescent groups. *International Journal for the Psychology of Religion*, 17, 209–232. <http://dx.doi.org/10.1080/10508610701402259>
- Leach, M. M., Berman, M. E., & Eubanks, L. (2008). Religious activities, religious orientation, and aggressive behavior. *Journal for the Scientific Study of Religion*, 47, 311–319. <http://dx.doi.org/10.1111/j.1468-5906.2008.00409.x>
- Little, R. A., & Rubin, D. B. (2002). *Statistical analysis with missing data* (2nd ed.). New York, NY: Wiley. <http://dx.doi.org/10.1002/9781119013563>
- Lopez, C., & Dubois, D. L. (2005). Peer victimization and rejection: Investigation of an integrative model of effects on emotional, behavioral, and academic adjustment in early adolescence. *Journal of Clinical Child and Adolescent Psychology*, 34, 25–36. http://dx.doi.org/10.1207/s15374424jccp3401_3
- Marmorstein, N. R., & Iacono, W. G. (2004). Major depression and conduct disorder in youth: Associations with parental psychopathology and parent-child conflict. *Journal of Child Psychology and Psychiatry*, 45, 377–386. <http://dx.doi.org/10.1111/j.1469-7610.2004.00228.x>
- Marsee, M. A., Frick, P. J., Barry, C. T., Kimonis, E. R., Muñoz Centifanti, L. C., & Aucoin, K. J. (2014). Profiles of the forms and functions of self-reported aggression in three adolescent samples. *Development and Psychopathology*, 26, 705–720. <http://dx.doi.org/10.1017/S0954579414000339>
- Marsee, M. A., Weems, C. F., & Taylor, L. K. (2008). Exploring the association between aggression and anxiety in youth: A look at aggressive subtypes, gender, and social cognition. *Journal of Child and Family Studies*, 17, 154–168. <http://dx.doi.org/10.1007/s10826-007-9154-1>
- Marshall, N. A., Arnold, D. H., Rolon-Arroyo, B., & Griffith, S. F. (2015). The association between relational aggression and internalizing symptoms: A review and meta-analysis. *Journal of Social and Clinical Psychology*, 34, 135–160. <http://dx.doi.org/10.1521/jscp.2015.34.2.135>
- McCabe, K., & Barnett, D. (2000). First comes work, then comes marriage: Future orientation among African American young adolescents. *Family Relations: Interdisciplinary Journal of Applied Family Studies*, 49, 63–70. <http://dx.doi.org/10.1111/j.1741-3729.2000.00063.x>
- McLaughlin, K. A., Aldao, A., Wisco, B. E., & Hilt, L. M. (2014). Rumination as a transdiagnostic factor underlying transitions between internalizing symptoms and aggressive behavior in early adolescents.

- Journal of Abnormal Psychology*, 123, 13–23. <http://dx.doi.org/10.1037/a0035358>
- Menesini, E., Modena, M., & Tani, F. (2009). Bullying and victimization in adolescence: Concurrent and stable roles and psychological health symptoms. *The Journal of Genetic Psychology: Research and Theory on Human Development*, 170, 115–134. <http://dx.doi.org/10.3200/GNTP.170.2.115-134>
- Negriff, S., & Susman, E. J. (2011). Pubertal timing, depression, and externalizing problems: A framework, review, and examination of gender differences. *Journal of Research on Adolescence*, 21, 717–746. <http://dx.doi.org/10.1111/j.1532-7795.2010.00708.x>
- Padilla-Walker, L. M., & Bean, R. A. (2009). Negative and positive peer influence: Relations to positive and negative behaviors for African American, European American, and Hispanic adolescents. *Journal of Adolescence*, 32, 323–337. <http://dx.doi.org/10.1016/j.adolescence.2008.02.003>
- Peterson, C., Maier, S. F., & Seligman, M. (1995). *Learned helplessness: A theory for the age of personal control*. New York, NY: Oxford University Press.
- Peterson, D., Esbensen, F., Taylor, T. J., & Freng, A. (2007). Youth violence in context: The roles of sex, race, and community in offending. *Youth Violence and Juvenile Justice*, 5, 385–410. <http://dx.doi.org/10.1177/1541204006297369>
- Phinney, J. S., Horenczyk, G., Liebkind, K., & Vedder, P. (2001). Ethnic identity, immigration, and well-being: An interactional perspective. *Journal of Social Issues*, 57, 493–510. <http://dx.doi.org/10.1111/0022-4537.00225>
- Phinney, J. S., & Ong, A. D. (2007). Conceptualization and measurement of ethnic identity: Current status and future directions. *Journal of Counseling Psychology*, 54, 271–281. <http://dx.doi.org/10.1037/0022-0167.54.3.271>
- Polgar, M., & Auslander, W. (2009). HIV prevention for youths in foster care: Understanding future orientation and intended risk behaviors. *Journal of HIV/AIDS & Social Services*, 8, 397–413. <http://dx.doi.org/10.1080/15381500903417646>
- Price, M., Chin, M. A., Higa-McMillan, C., Kim, S., & Frueh, B. C. (2013). Prevalence and internalizing problems of ethnically diverse victims of traditional and cyberbullying. *School Mental Health*, 5, 183–191. <http://dx.doi.org/10.1007/s12310-013-9104-6>
- Prinz, R. J., Foster, S., Kent, R. N., & O'Leary, K. D. (1979). Multivariate assessment of conflict in distressed and nondistressed mother-adolescent dyads. *Journal of Applied Behavior Analysis*, 12, 691–700. <http://dx.doi.org/10.1901/jaba.1979.12-691>
- Radnovich, H. L., & Wiens, B. A. (2012). Providing mental health services for children, adolescents, and families in rural areas. In K. B. Smalley, J. C. Warren, & J. P. Rainer (Eds.), *Rural mental health: Issues, policies, and best practices* (pp. 281–295). New York, NY: Springer.
- Rasic, D., Kisely, S., & Langille, D. B. (2011). Protective associations of importance of religion and frequency of service attendance with depression risk, suicidal behaviours and substance use in adolescents in Nova Scotia, Canada. *Journal of Affective Disorders*, 132, 389–395. <http://dx.doi.org/10.1016/j.jad.2011.03.007>
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage Ltd.
- Rosario, M., Salzinger, S., Feldman, R. S., & Ng-Mak, D. S. (2008). Intervening processes between youths' exposure to community violence and internalizing symptoms over time: The roles of social support and coping. *American Journal of Community Psychology*, 41, 43–62. <http://dx.doi.org/10.1007/s10464-007-9147-7>
- Rueger, S. Y., Malecki, C. K., & Demaray, M. K. (2008). Gender differences in the relationship between perceived social support and student adjustment during early adolescence. *School Psychology Quarterly*, 23, 496–514. <http://dx.doi.org/10.1037/1045-3830.23.4.496>
- Salmivalli, C., & Nieminen, E. (2002). Proactive and reactive aggression among school bullies, victims, and bully-victims. *Aggressive Behavior*, 28, 30–44. <http://dx.doi.org/10.1002/ab.90004>
- Schwartz, S. J., Zamboanga, B. L., & Jarvis, L. H. (2007). Ethnic identity and acculturation in Hispanic early adolescents: Mediated relationships to academic grades, prosocial behaviors, and externalizing symptoms. *Cultural Diversity and Ethnic Minority Psychology*, 13, 364–373. <http://dx.doi.org/10.1037/1099-9809.13.4.364>
- Seals, D., & Young, J. (2003). Bullying and victimization: Prevalence and relationship to gender, grade level, ethnicity, self-esteem, and depression. *Adolescence*, 38, 735–747.
- Smokowski, P. R., & Bacallao, M. L. (2007). Acculturation, internalizing mental health symptoms, and self-esteem: Cultural experiences of Latino adolescents in North Carolina. *Child Psychiatry and Human Development*, 37, 273–292. <http://dx.doi.org/10.1007/s10578-006-0035-4>
- Smokowski, P. R., & Bacallao, M. L. (2010). *Becoming bicultural: Risk, resilience, and Latino youth*. New York, NY: New York University Press.
- Smokowski, P. R., Cotter, K. L., Robertson, C. I. B., & Guo, S. (2013). Anxiety and aggression in rural youth: Baseline results from the rural adaptation project. *Child Psychiatry and Human Development*, 44, 479–492. <http://dx.doi.org/10.1007/s10578-012-0342-x>
- Smokowski, P. R., Evans, C. B. R., Cotter, K. L., & Webber, K. C. (2014). Ethnic identity and mental health in American Indian youth: Examining mediation pathways through self-esteem, and future optimism. *Journal of Youth and Adolescence*, 43, 343–355. <http://dx.doi.org/10.1007/s10964-013-9992-7>
- Smokowski, P. R., Guo, G., Cotter, K. L., & Evans, C. B. R. (in press). Multi-level risk factors and developmental assets associated with aggressive behavior in disadvantaged adolescents: Modeling longitudinal trajectories from the rural adaptation project. *Aggressive Behavior*.
- Smokowski, P. R., Guo, S., Rose, R., Evans, C. B. R., Cotter, K. L., & Bacallao, M. (2014). Multilevel risk factors and developmental assets for internalizing symptoms and self-esteem in disadvantaged adolescents: Modeling longitudinal trajectories from the Rural Adaptation Project. *Development and Psychopathology*, 26, 1495–1513. <http://dx.doi.org/10.1017/S0954579414001163>
- Smokowski, P. R., & Kopasz, K. (2005). Bullying in school: An overview of types, effects, family characteristics, and intervention strategies. *Children & Schools*, 27, 101–110. <http://dx.doi.org/10.1093/cs/27.2.101>
- Smokowski, P., Reynolds, A., & Bezruczko, N. (1999). Resilience and protective factors in adolescence: An autobiographical perspective from disadvantaged youth. *Journal of School Psychology*, 37, 425–448. [http://dx.doi.org/10.1016/S0022-4405\(99\)00028-X](http://dx.doi.org/10.1016/S0022-4405(99)00028-X)
- Stewart, T., & Suldo, S. (2011). Relationships between social support sources and early adolescents' mental health: The moderating effect of student achievement level. *Psychology in the Schools*, 48, 1016–1033. <http://dx.doi.org/10.1002/pits.20607>
- Storch, E. A., Bagner, D. M., Geffken, G. R., & Baumeister, A. L. (2004). Association between overt and relational aggression and psychosocial adjustment in undergraduate college students. *Violence and Victims*, 19, 689–700. <http://dx.doi.org/10.1891/vivi.19.6.689.66342>
- Suldo, S. M., Shaunessy, E., Thalji, A., Michalowski, J., & Shaffer, E. (2009). Sources of stress for students in high school college preparatory and general education programs: Group differences and associations with adjustment. *Adolescence*, 44, 925–948.
- Swahn, M. H., Bossarte, R. M., Palmier, J. B., Yao, H., & Van Dulmen, M. H. M. (2013). Psychosocial characteristics associated with frequent physical fighting: Findings from the 2009 national youth risk behavior survey. *Injury Prevention*, 19, 143–146. <http://dx.doi.org/10.1136/injuryprev-2012-040381>
- Sweeting, H., Young, R., West, P., & Der, G. (2006). Peer victimization and depression in early-mid adolescence: A longitudinal study. *British*

- Journal of Educational Psychology*, 76, 577–594. <http://dx.doi.org/10.1348/000709905X49890>
- Tynes, B. M., Umaña-Taylor, A. J., Rose, C. A., Lin, J., & Anderson, C. J. (2012). Online racial discrimination and the protective function of ethnic identity and self-esteem for African American adolescents. *Developmental Psychology*, 48, 343–355. <http://dx.doi.org/10.1037/a0027032>
- Valois, R. F., Paxton, R. J., Zullig, K. J., & Huebner, S. E. (2006). Life satisfaction and violent behavior among middle school students. *Journal of Child and Family Studies*, 15, 695–707. <http://dx.doi.org/10.1007/s10826-006-9043-z>
- Wagner, S., Müller, C., Helmreich, I., Huss, M., & Tadić, A. (2015). A meta-analysis of cognitive functions in children and adolescents with major depressive disorder. *European Child & Adolescent Psychiatry*, 24, 5–19. <http://dx.doi.org/10.1007/s00787-014-0559-2>
- Witherspoon, D., Schotland, M., Way, N., & Hughes, D. (2009). Connecting the dots: How connectedness to multiple contexts influences the psychological and academic adjustment of urban youth. *Applied Developmental Science*, 13, 199–216. <http://dx.doi.org/10.1080/10888690903288755>
- Woodward, L. J., & Fergusson, D. M. (2001). Life course outcomes of young people with anxiety disorders in adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40, 1086–1093. <http://dx.doi.org/10.1097/00004583-200109000-00018>
- Zahn-Wexler, C., Klimes-Dougan, B., & Slattery, M. J. (2000). Internalizing problems of childhood and adolescents: Prospects, pitfalls, and progress in understanding the development of anxiety and depression. *Development and Psychopathology*, 12, 433–466. Retrieved from <http://journals.cambridge.org/action/displayJournal?jid=DPP>