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Future expectations, attitude towards violence, and bullying perpetration during early adolescence: A mediation evaluation

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Introduction

Bullying behavior is a problem in schools and communities across the world (Smith & Brain, 2000). According to the Center for Disease Control and Prevention, approximately 30% of U.S. high school and middle school adolescents report at least moderate bullying experiences as the bully, victim, or both (Hamburger, Basile, & Vivolo, 2011). In the United States, 13.3% of students reported perpetrating physical bullying, 37.4% reported perpetrating verbal bullying, and 27.2% reported perpetrating social bullying against another student at least once in the past 2 months at school (Wang, Iannotti, & Nansel, 2009). Research on the perpetration of cyberbullying is scant, though Li (2007) found that approximately 15% of 7th grade students in an urban city have perpetrated bullying through electronic media. According to the National Association of School Nurses (NASN; 2013), registered professional school nurses¹ have a unique role to play in the prevention of school violence (e.g., bullying) by identifying potential problems and advocating for student safety, both with students directly and through program implementation within the school community. As such, understanding factors that exacerbate or attenuate bullying is important as they can lead to personalized efforts to prevent such behavior or be incorporated into school-wide interventions. The present study attempts to illuminate two potential individual-level factors by exploring the relationship between positive expectations for the future, attitude towards violence, and physical and relational bullying perpetration in a sample of adolescents.

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¹The registered professional school nurse, hereinafter referred to as the school nurse, is defined by the National Association of School Nurses as a 'registered professional nurse who has a commitment to lifelong learning...[educated] at the baccalaureate level, and ... continues to pursue professional development and continuing nursing education' (NASN, 2011).

Physical and Relational Bullying

Most researchers consider bullying a subcategory of aggressive behavior (Espelage & Swearer, 2003; Smith et al., 1999). Bullying is depicted as intentional aggressive behaviors that are repetitive and impose a power imbalance between students who bully and students who are victimized (Gladden, Vivolo-Kantor, Hamburger, & Lumpkin, 2014). Physical bullying perpetration is the threat of or actual use of physical aggression by a perpetrator(s) toward the targeted youth and includes shoving, hitting, punching, kicking, and pushing (Gladden et al., 2014). Relational forms of bullying perpetration include exclusion, ridicule, and name calling with a specific goal of manipulating social networks (Gladden et al., 2014). Bullying can also occur through email, chat rooms, instant and text messaging, and via videos or pictures posted on websites or sent through cell phones (David-Ferdon & Hertz, 2009).

Bullying occurs throughout the school-aged years; however, it is most prevalent among middle school-aged youths (Nansel et al., 2001). Bradshaw, Sawyer, & O'Brennan (2007) found that middle school students experienced the most forms of bullying compared to elementary and high school-aged students. In addition, attitudes toward bullying also become more supportive of bullying as students' progress through middle school (Swearer & Cary, 2003). Given that the middle school years mark a period of rapid and intense changes on multiple levels (e.g., puberty, new school environment, advances in self-concept; Eccles, Midgley, et al., 1993), bullying during this period may be especially pernicious. Most bullying occurs in school, on the school grounds, and on the school bus (Bradshaw et al., 2007). Given the amount of time youth spend at school, the school setting is understandably an important developmental context (Jessor, 1993), and a setting in which strategies to prevent, identify or stop bullying can be implemented at numerous points of contact (i.e., classroom teachers, school nurses, school counselors and psychologists).

Despite the frequency of bullying in schools, bullying is not considered a part of normal development for school-aged youth (Nansel et al., 2001) and there is substantial evidence that bullies are vulnerable to a host of negative outcomes that can affect their well-being and social functioning throughout adolescence and into adulthood (Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003; Nansel et al., 2001; Smokowski & Kopasz, 2005). Adolescents who bully tend to also exhibit other problem and delinquent behaviors and less positive social relationships later in life (Crick, 1996; Galen & Underwood, 1997; Loeber, 1996; Williams, Fredland, Han, Campbell, & Kub, 2009). Bullying perpetration during adolescence increases the likelihood of continued anti-social behaviors and negative outcomes in adulthood (Bender & Losel, 2011; Farrington, 1993; Farrington & Ttofi, 2011; Renda, Vassallo, & Edwards, 2011; Ttofi & Farrington, 2011, Ttofi, Farrington, Lösel & Loeber, 2011). It has also been linked to low job status, drug use, and an unsuccessful life in early and middle adulthood (e.g., housing problems, relationship problems, employment problems, etc.; Farrington & Ttofi, 2011). Kim and colleagues (2011) found that a history of bullying perpetration during childhood significantly predicted violence, risk of heavy drinking and marijuana use in young adulthood.

Researchers have identified similarities and differences in bullying for boys and girls. Boys bully, and are bullied, more than girls (Craig et al., 2009), however, this may vary based on

type of bullying. Pepler and colleagues (2006) found boys reported higher levels of bullying toward both same-sex and opposite-sex peers compared to girls. Boys tend to use more physical bullying and girls more psychological or relational forms of bullying (Sullivan, 2011; Crick, Bigbee & Howes, 1996). Yet, gender differences among physical and verbal forms of bullying are not as prevalent as among relational or social forms of bullying (Carbone-Lopez, Esbensen & Brick, 2010). In addition, Crapanzano and colleagues (2011) found that bullying was more stable across school years for boys than for girls, and concluded that girls may be more influenced by social norms while boys may be more influenced by their personality characteristics.

Researchers have begun to identify factors that contribute to bullying among children and adolescents including factors that may increase the likelihood of bullying perpetration (i.e., risk factors), as well as those that may reduce the likelihood of perpetration (i.e., promotive factors; Hemphill et al., 2012; Kokkinos & Kipritsi, 2011; Shetgiri, Lin, & Flores, 2013; Stassen, 2007). Resiliency theory posits that a variety of factors in childhood and adolescence influence the likelihood of an individual's participation in behaviors that can either positively or negatively affect their health and well-being. Risk factors are defined as those conditions that are associated with a higher likelihood of negative outcomes (Kazdin, Kraemer, Kessler, Kupfer, & Offord, 1997). Promotive factors operate to enhance healthy development (Fergus & Zimmerman, 2005).

Currently, most research on bullying has focused on risk factors and relatively little is known about promotive factors. For example, factors such as low-empathy, family conflict, academic failure, and previous bullying experiences are risk factors for bullying perpetration (Hemphill et al., 2012; Kokkinos & Kipritsi, 2011). Alternatively, youths with a greater number of developmental strengths are less likely to perpetrate bullying behaviors (Donnon, 2009). In order to prevent bullying and its negative sequelae, it is vital to identify factors that contribute to bullying among children and adolescents; factors that may increase the likelihood of bullying perpetration (i.e., risk factors), or may reduce the likelihood of participating in bullying (i.e., promotive factors). A better understanding of how personal characteristics contribute to bullying behavior, as either risk or promotive factors, is needed. Future expectations and attitude towards the use of violence to solve problems are personal characteristics worthy of further examination.

Future expectations

Future orientation can be defined as an individual's thoughts, plans, motivations, hopes, and feelings about his or her future (Nurmi, 1991). Expectations or beliefs about the future may be positive or negative, and are influenced by an individual's experiences and interactions within their social context (Nurmi, 1991). Expectations about the future are learned at an early age through culture, religion, social class, education and family (Nurmi, 1991; Nurmi & Pulliainen, 1991). Environmental factors such as violence and poverty may limit an adolescent's ability to think about the future and inhibit the development of a hopeful sense of the future (Lorion & Saltzman, 1993; McGee, 1984). Poverty may negatively influence an adolescent's ability to think about the future, leading to feelings of hopelessness (Lorion & Saltzman, 1993). Importantly, possessing positive expectations about the future may be

associated with desirable outcomes, thus representing a valuable promotive factor for youth development. Until recently, most research on future orientation and expectations about the future have focused on academic achievement and school functioning (e.g., Adedun, 2008). Stoddard, Zimmerman, and Bauermeister (2011), however, examined expectations about the future as a promotive factor against violence in a sample of urban adolescents. They found that higher levels of future expectations (i.e., more positive beliefs about their future) were related to a decrease in violent behavior over time. These results support other similar associations between future goals/expectations and violent behavior (Birnbaum et al., 2003), but the effects of an individual's beliefs or expectations about their future on bullying behavior has not been studied. Future expectations may play a vital role in understanding adolescent bullying behavior. Adolescents who do not have positive expectations of the future, or are lacking a sense of hope for the future, may be less concerned about the negative consequences of bullying and therefore may be more apt to bully. On the other hand, it is possible that adolescents with more positive future expectations may not want to jeopardize their future plans and therefore refrain from bullying.

Attitude Towards Violence

Other individual-level factors may account for aggressive behavior and may serve as mediators for bullying and aggressive behavior. More specifically, beliefs and attitudes that support the use of violence have been associated with bullying and aggressive behavior (Cotton et al., 1994; Espelage, Bosworth, & Simon, 2001; Slaby & Guerra, 1988). Conversely, greater levels of confidence in the use non-violent strategies in conflicts have been associated with less bullying behavior (Bosworth, Espelage & Simon, 1999; Espelage et al., 2001). Similarly, Pardini, Loeber, Farrington, & Stouthamer-Loeber, (2012) found that having a negative attitude towards delinquent behavior at age 12 was a promotive factor against violent behavior during later adolescence. In addition, Spaccarelli, Coatsworth, and Bowden (1995) found that beliefs and attitudes about the use of violence mediated the relationship between exposure to violence and violent behavior for adolescent males already involved in delinquent behaviors.

To our knowledge, researchers have not examined the potential mediating role of attitude towards violence to solve problems on the link between adolescents' future expectations and bullying behavior. Because interventions have emphasized the value of altering adolescents' attitudes toward bullying (i.e., Youth Matters Prevention Program; Jenson et al., 2013), articulating factors that may precede attitudes is important. Furthermore, identifying a modifiable promotive factor may be useful in the preventative efforts of school-based personnel (e.g., school nurses).

Bullying Prevention Interventions

Numerous bullying prevention intervention programs exist and can include strategies implemented at the level of the individual, within the classroom, school-wide, and within the broader community. Comprehensive reviews of these anti-bullying programs have identified the most promising strategies for bullying prevention to date (for a comprehensive discussion of those reviews, see Bradshaw, 2015). In a meta-analysis of bullying prevention programs, Ttofi & Farrington (2011b) found that the most effective programs were more

intensive, and included school and classroom management approaches such as consistent disciplinary methods and improved student supervision. Other effective strategies include teacher training (e.g., the Bully Busters Program; Newman-Carlson & Horne, 2004) and parent training activities and meetings. To date, multi-component, school-wide programs (e.g., Olweus Bullying Prevention Program, Olweus, 2005) have been deemed most effective in reducing bullying. One example, Olweus Bullying Prevention Program, includes components at multiple levels – school-wide components, classroom activities, activities aimed at increasing parent and community member involvement, and targeted interventions for individuals identified as bullies and victims – with the goal of developing a positive school environment (Olweus & Limber, 2010). Individual-level components of the program include supervising students, intervening in bullying situations, and potentially developing individual intervention plans for involved students. School nurses play in an important role in multi-component school-wide programs by screening students for emotional distress and implementing individualized health education plans. These actions can aid in understanding whether bullying is prevalent in a school community, identifying potential perpetrators, and discussing how to stop this behavior (Lineberry & Ickes, 2014).

To date, programs focused on the intra-individual characteristics of the bully are scant. The Youth Matters Prevention Program (Jenson, Brisson, Bender, & Williford, 2013) attempts to inhibit bullying perpetration through promoting attachment to relationships (e.g., school, family, peers) and the adoption of the values of these relationships, enhancing external control of authority figures and improving social, cognitive and emotional skills that aid in problem-solving. Overall, it aims to shift students' perceived norms, beliefs and perceived self-efficacy in stopping bullying. Although the intervention modules attempt to build students' social skills, to our knowledge it does not include curricula to build positive self and future perceptions. Interventions aimed at engaging youth in opportunities to think about the future may also hold promise in changing detrimental bully characteristics. For example, Oyserman, Terry, and Bybee (2002) developed an intervention focused on changing adolescents' perceived possible selves. Through small group activities, adolescents were encouraged to develop a vision of themselves in the future and pathways to achieve these goals, including emphasizing the role of school in goal achievement. Students reported higher school bonding, concern about doing well in school, and less problem behavior (Oyserman et al., 2002), thus highlighting the potential value of this intervention for improving individual level promotive factors to prevent bullying.

Purpose and Hypotheses

The purpose of this study was to explore the relationship between future expectations, attitude towards the use of violence to solve problems, and self-reported physical and relational bullying perpetration in a sample of 7th grade students. We examined the relationship between future expectations and physical and relational bullying perpetration and tested a mediation model that linked future expectations with perpetration through attitude about violence. We hypothesized that youths who reported higher future expectations would report perpetrating fewer bullying behaviors, both physical and relational. We also hypothesized that attitude towards the use of violence to solve problems would mediate the relationship between future expectations and physical and relational

bullying perpetration. Given the differences reported in the literature regarding the perpetration of physical and relational bullying by gender, we examined gender as a moderator.

Methods

This study is based on data collected as part of a school-based survey for a pilot study focused on understanding risk and promotive factors for youth violence and bullying. Data were collected from 7th grade students at a Midwestern middle school during their health class during the 2011-2012 academic year. The school is located in a district that cuts across both suburban and urban areas making the overall 7th grade student population (49% female) highly diverse (50% African American, 36% White). In addition, this suburban community is located in a geographic area that has undergone significant economic decline with 71% of the 7th grade students considered economically disadvantaged (Michigan Department of Education, 2014).

The survey was administered in health classrooms by trained research staff. Participants completed a self-administered paper and pencil questionnaire that included items about future expectations, attitude towards violence, past 30-day relational and physical bullying perpetration, violent behavior, and other known risk and protective factors associated with youth violence. Most students completed the survey in approximately 31 minutes ($M = 31.55$, $SD = 3.45$). Non-participating students were given workbooks and instructed to work quietly during the survey hour while the rest of the class took the survey. For students with lower reading levels or limited English proficiency ($n = 4$), the survey was read aloud in a separate, private room.

The study was approved by the University of Michigan Institutional Review Board and a Certificate of Confidentiality was obtained from the National Institutes of Health. Participation in the study was completely voluntary and no compensation was provided to participants. Written parental consent and student assent were obtained prior to study participation.

Measures

Future expectations—Adolescents' beliefs about their future were measured using a modified version of Wyman, Cowen, Work, and Kerley's (1993) Children's Future Expectations scale. Six items were used, including: I will be able to handle the problems that might come up in my life, I will be able to handle my school work, I will always have friends and people that care about me, I will be able to stay out of trouble, I will have a happy life, and *I will have interesting things to do in my life*. Response options ranged from 1 (*disagree a lot*) to 4 (*agree a lot*). We computed a composite score for each participant with higher values indicating more positive future expectations (Cronbach's $\alpha = .77$). The original scale demonstrated good internal consistency in a sample of 4th to 6th grade students (Cronbach's $\alpha = .70$; Wyman et al., 1993).

Attitude towards violence—Attitude towards violence was assessed using a modified version of the Beliefs Supportive of Violence Scale (Dahlberg et al., 1998; Bosworth &

Espelage, 1995; Bosworth, Espelage, & Simon, 1999). Six items were used, including: *If I walk away from a fight I would be a coward*; It's ok to hit someone who hits you first; If someone picks (teases or threatens) on me, the only way I can get him/her to stop is if I hit him/her; If I refuse to fight, my friends will think I'm scared; I don't need to fight because there are other ways to deal with being mad; and If I really wanted to, I could talk someone out of wanting to fight with me. Response options ranged from 1 (*disagree a lot*) to 4 (*agree a lot*). We computed a mean composite score with higher scores indicating a more positive attitude towards the use of violence to solve problems (Cronbach $\alpha = .60$). The original scale was developed for use with middle school students (Dahlberg et al., 1998) and has demonstrated good internal consistency in a sample of 6th to 8th grade students (Cronbach's $\alpha = .71$; Bosworth et al., 1999).

Physical and relational bullying perpetration—Following the work of Espelage and colleagues (e.g., Espelage et al., 2001), bullying perpetration was assessed using behavioral descriptors of physical and relational perpetrator behaviors. The present study utilized the measures of physical bullying perpetration and relational aggression perpetration from the Lead Peace Survey (LPS; Polan, Sieving, & McMorris, 2013).

Physical bullying perpetration: Three items, indicating how often participants had engaged in each behavior at school or on the school bus during the past month, were used to assess physical bullying perpetration. Two items were included from the LPS: *threaten to hit or hurt another student* and *ask someone to fight*. One item from the LPS was modified for the current study: *been in a physical fight*. Response options ranged from 0 (*never*) to 5 (*5 or more times*). We summed these items to create a physical bullying perpetration scale with higher scores indicating more physical bullying perpetration. These items showed good internal consistency in the present study (Cronbach $\alpha = .75$). These items have shown good internal consistency in a previous sample of 6th and 7th grade participants (Cronbach $\alpha = .80$; Polan et al., 2013).

Relational bullying perpetration: Nine items, indicating how often participants had engaged in each aggressive behavior at school or on the school bus during the past month, were used to assess relational bullying perpetration. The following items were included from the LPS: *leave someone out on purpose*; *pick on someone*; *say things about another student to make others laugh*; *ignore or stop talking to someone*; *spread rumors or gossip about someone*; *make fun of someone's family*; and *threaten to not be someone's friend*; *say something hurtful to someone in email or on the internet*; and *ruin someone's stuff*. Response options ranged from 0 (*never*) to 5 (*5 or more times*). We summed these items to create a relational bullying perpetration scale with higher scores indicating more relational bullying perpetration. These items showed good internal consistency in the present study (Cronbach $\alpha = .82$). This scale also demonstrated good internal consistency in a sample of 6th and 7th grade adolescents ($\alpha = .82$; Polan et al., 2013).

Demographic variables—Participants' self-reported gender (0 = girl; 1 = boy) and race/ethnicity. Race/ethnicity was measured using six categories: Black or African American,

White, Asian, American Indian, Hispanic, and Other. For analyses race/ethnicity was condensed into three categories: White, Black, and Mixed Race/Other Race.

Data Analyses

Descriptive statistics, including means, standard deviations, frequencies and, percentages, were used to describe study variables. Pearson product-moment correlations were used to examine bivariate relationships between study variables. Differences on measures across genders were examined with independent sample t-tests assuming unequal variances (Zimmerman, 2004).

We completed a mediation evaluation using structural equation modeling (SEM) with observed variables (i.e., path model) in *Mplus* version 7.0 (Muthén & Muthén, 2010). *Mplus* allows all regression equations in the mediation model to be estimated simultaneously. Including both physical and relational bullying perpetration in a single model also provides the ability to account for their correlation. Multiple group SEM was then used to evaluate whether gender moderated the relationships in our proposed model. Robust maximum likelihood (MLM) estimation with standard errors and a mean-adjusted chi-square test statistic, the Satorra-Bentler chi-square (SB χ^2), were used in order to account for the non-normality of the data.

According to classic approaches to mediation (Baron & Kenny, 1986), several conditions must be met for a variable to be considered a mediator. The first condition is that the independent variable (future expectations) must be significantly associated with the dependent variable (bullying), referred to as path c. However, current practice has omitted this requirement as situations may exist in which a significant mediation effect is present in the absence of a significant correlation (i.e., suppression; Hayes, 2009). Other criteria include: 1) the independent variable (future expectations) must be significantly associated with the hypothesized mediator (attitude towards violence; path a); 2) the mediator (attitude towards violence) must be significantly associated with the dependent variable (bullying; path b); and 3) the impact of the independent variable (future expectations) on the dependent variable (bullying) is less after controlling for the mediator (attitude towards violence; (i.e., $c' < c$).

In structural equation modeling, the mediating effect is expressed as the indirect effect. The indirect effect is the product of two path coefficients (a X b) and is considered significant on the basis of 95% confidence intervals of the unstandardized coefficient estimates. Mediated effects were tested by computing 95% confidence intervals for indirect effects. If the 95% biased corrected confidence interval of the specific direct and indirect effect does not include 0, we concluded that there was a significant effect (Hayes, 2009). The relationship between the independent variable and dependent variable is considered completely mediated if path c' is non-significant. Model fit indices include model chi-square with degrees of freedom (*df*) and *p*-value, comparative fit index (CFI; Bentler, 1990), root mean square error of approximation (RMSEA; Browne & Cudeck, 1993), and its 90% confidence interval (CI). CFI > .90 and RMSEA < .05 are indicative of a good fit (Kline, 2011).

Results

Descriptives

Approximately 48% of eligible 7th grade students participated in the survey ($n = 196$; $M_{\text{age}} = 12.86$, $SD = .49$; 60% female; Table 1). Among the 196 participants, 33% ($n = 65$) reported being involved in a physical fight in the past month; 31% ($n = 60$) reported 2 or more acts of physical aggression and 72% ($n = 142$) reported two or more acts of relational aggression in the past month. Table 2 provides descriptive data for the focal variables (future expectations, attitude towards violence, physical bullying and relational bullying) separately for boys and girls. Almost 38% of boys ($n = 29$) and 26% girls ($n = 31$) reported perpetrating 2 or more acts of physical bullying in school during the past 30 days. Approximately 70% of boys ($n = 54$) and 74% of girls ($n = 87$) reported perpetrating 2 or more acts of relational bullying in school during the same time period.

Bivariate Associations

As seen in Table 2, we found no gender differences for future expectations ($t(191) = -1.53$, $p = \text{n.s.}$), attitude towards violence ($t(186) = 1.26$, $p = \text{n.s.}$), or relational bullying ($t(186) = 0.23$, $p = \text{n.s.}$). Boys reported higher levels of physical bullying when compared to girls ($t(192) = 1.47$, $p = \text{n.s.}$).

For the full sample, future expectations were correlated negatively with positive attitude towards violence ($r = -.19$, $p < .05$), physical bullying perpetration ($r = -.22$, $p < .01$), and relational bullying perpetration ($r = -.32$, $p < .01$). Positive attitude towards violence was correlated with physical bullying perpetration ($r = .37$, $p < .01$) and relational bullying perpetration ($r = .37$, $p < .01$). Physical and relational bullying perpetration were also correlated ($r = .71$, $p < .01$). None of the demographic variables were correlated with future expectations, attitude towards violence, physical or relational bullying for the full sample. Table 3 presents bivariate correlations separately by gender.

Multivariate Models

Results of the path analysis for the full sample are shown in Table 4. The model initially accounted for gender and race/ethnicity). Race/ethnicity was not significantly associated with any of the focal variables, so for parsimony, was removed from the model. Gender, although not significant, remained in the model to be consistent with the hypothesis and literature supporting gender differences in physical and relationship bullying. The path diagram of the mediation model for physical and relational bullying perpetration (Figure 1) includes standardized estimates for the causal paths for the direct effects. The model was a good fit to the data: $SB \chi^2(1, N = 183) = .94$, $p = .33$; CFI = 1.00; TLI = 1.00; RMSEA = .00, 90% CI [.000, .193]; SRMR = .02). Attitude towards violence fully mediated the relationship between future expectations and physical bullying, as shown in the significant indirect effect and non-significant direct path. Attitude towards violence partially mediated the relationship between future expectations and relational bullying as shown by the significant indirect effect and significant direct path.

After testing the proposed model with the full sample, we conducted a multiple group structural equation modeling to test for the moderating effects of gender. Satorra-Bentler scaled chi-square difference tests (χ^2) were used to contrast the fit of nested models. We first fit a model in which all path coefficients were constrained to be equal between gender groups. The model had a good fit to the data: ($[SB \chi^2(5), N = 183] = 7.59, n.s.$; CFI = .98; TLI = .95; RMSEA = .08, 90% CI [.00, .18]; SRMR = .06). We then used the LaGrange multiplier tests to determine the impact of freeing particular paths in order to improve model fit (Scott-Lennox & Lennox, 1995). The LaGrange multiplier tests suggested freeing the constraints for one path coefficient (attitude towards violence \rightarrow relational bullying perpetration). We compared the overall model fit to the model that was fully constrained. The model with the freed path coefficient also fit well, according to the fit statistics ($[SB \chi^2(4), N = 183] = 6.23, n.s.$; CFI = .98; TLI = .95; RMSEA = .08, 90% CI [.00, .19]; SRMR = .05). The corrected chi-square difference test, $\chi^2(1) = 1.35, n.s.$, indicated that constraining all parameters to be equal between groups (boys and girls) did not significantly worsen the model fit indicating no gender differences in the proposed relationship.

Discussion

This study examined the relationship between future expectations, attitude towards violence, and self-reported physical and relational bullying perpetration among young adolescents from an economically distressed community. Our findings supported the hypothesis that more positive future expectations would be related to lower levels of both physical and relational bullying perpetration in this sample of early adolescents. Our findings also supported the hypothesis that the relationship between future expectations and physical and relational bullying perpetration would be mediated by attitude towards violence.

Our study offers several significant contributions to our understanding of physical and relational bullying perpetration. The present study advanced our understanding of the link between future expectations and bullying perpetration. Our results are consistent with the extant research literature indicating that adolescents with future goals were less likely to be involved in physical fighting (Stoddard et al., 2011). Researchers, however, have not articulated the mechanism through which this relationship occurs. It is possible that adolescents with positive future expectations would perceive violence as hindering their future goals. Alternatively, adolescents with positive future expectations may not consider bullying and aggressive behavior in their repertoire. This may be due to a more positive outlook on life as poor future expectations have been linked to depression and hopelessness (Chen & Vazonyi, 2013), which are associated with bullying perpetration (Espelage et al., 2001). It is also possible that future expectations are connected to better social integration and skills, which preclude the perpetration of bullying behaviors.

These conjectures were explored in the present study by considering attitude towards violence as a mediating mechanism in the relationship between future expectations and physical and relational bullying perpetration. We found that attitude towards violence fully mediates the relationship with physical bullying perpetration. This is consistent with previous research which found a relationship between favorable attitude towards violence and self-reported aggression to others (Espelage et al., 2001). Conversely, Bosworth et al.

(1999) found that bullying (including both relational and physical) was lower among adolescents who were confident in using nonviolent strategies during a conflict. It is possible that children who see little hope for a positive future may consider violent and aggressive behavior an appropriate route for obtaining social and personal goals. These adolescents may determine that there is little to lose by engaging in negative and destructive behavior. Rather, they may see violence as an opportunity to display power and influence that they do not have or experience in other social interactions. Although this may indicate poorer social skills among those who do bully, it may also indicate that children who bully perceive a limited range of strategies to accomplish desired goals (e.g., control, influence). Violence may be the best option when their future is already bleak.

The relationship between future expectations and relational bullying perpetration was partially mediated by attitude towards violence. Relational aggression may be seen as another opportunity to display dominance and power in a social context. Yet, although attitude towards violence were related to relational bullying perpetration in a manner similar to physical bullying perpetration, the relationship between future expectations and bullying was not fully transmitted through these attitudes. While researchers have suggested that attitude towards violence predicts bullying among early adolescents, other psychological factors are important as well (Espelage et al., 2001). Espelage et al. (2001), for example, found that anger and depression were associated with an increase in bullying (including relational and physical) over time in a sample of 6th grade students. As previously indicated, it is possible that poor future expectations are associated with increased feelings of negative affect, including depression, anger, hostility and hopelessness. These psychological factors, in turn, may lead adolescents to degrade, tease, and belittle others as a form of emotion regulation and coping (Espelage et al., 2001). It is also possible that anger or depression may be a confounding factor, a factor that predicts both attitudes toward violence (our mediator) and relational and physical bullying perpetration (our outcomes). The omission of this potential confound could result in correlated residual errors, violating an assumption of mediation. Future research should incorporate other factors that may influence both attitudes and behaviors.

Establishing a mediational link is important for future bullying prevention intervention strategies. Interventions exist that aim to alter adolescents' attitude towards violence (i.e., Youth Matters Prevention Program; Jenson et al., 2013). This study, therefore, draws back the potential predictive link to include the promotive factor of positive future expectations. It may be valuable to incorporate current interventions that have been developed to improve adolescents' perceptions of their future (i.e., Oyserman et al., 2002) into interventions for bullying prevention. School nurses may also utilize this information as they implement one-on-one preventative efforts; not only do adolescents need to shift their attitudes about violence to solve problems, they also need to envision a bright future for themselves where violence will impede their goals.

We found no gender differences in the relationship between future expectations, attitude towards violence, or physical or relational bullying perpetration. It is possible the small sample size reduced statistical power to detect these differences in our multiple group analysis. It is notable that almost three quarters of both boys and girls reported perpetrating

2 or more acts of relational bullying perpetration in school in the last 30 days and approximately one third of boys and girls reported perpetrating 2 or more acts of physical bullying perpetration in school in the past 30 days. These estimates are higher than reported in past research particularly for physical and relational bullying perpetration (Wang et al., 2009). The discrepancy with past research may be explained by differences in definitions, methodologies, or the time frames in which the bullying behavior was assessed (Borntreger, Davis, Bernstein, & Gorman, 2009). We examined both relational and physical bullying perpetration with items that asked about specific bullying behaviors (i.e., threatening to hit, teasing) without prompting students with a definition of bullying. Wang and colleagues used a questionnaire in which the participants received a standard definition of bullying prior to being asked about bullying behaviors (Wang et al., 2009). These definitions or prompts may influence participants' responses based on whether or not participants view themselves as bullies, rather than identifying their participation in behaviors that are defined as bullying. While researchers lack consensus regarding the prevalence of all types of bullying in the country, efforts such as those by the CDC that suggest standard definitions and measures will be useful to future research endeavors (Gladden et al., 2014; Hamburger et al., 2011).

Limitations

Despite the strengths of the current study, several limitations should be noted. First, given the cross-sectional and correlational nature of the data, we cannot make inferences about causality. Our analysis supported attitudes towards violence as a mediator between future expectations and physical and relational bullying perpetration. Yet, model testing can never confirm a model; it can only fail to disconfirm it (Cliff, 1983). It is plausible that youth who report attitudes less supportive of the use of violence may report higher levels of future expectations, and it is possible that these non-violent attitudes influence young peoples' expectations about the future. Although longitudinal data would strengthen the ability to make casual inferences (Preacher, 2015), our findings suggest that future expectations may operate as a promotive factor against bullying perpetration through attitudes about violence. Longitudinal studies are needed to confirm the relationships between future expectations, attitude towards violence to solve problems, and perpetration of physical and relational bullying. Second, our sample was relatively small, particularly for boys, and included adolescents who were in class the day of the survey and had obtained parental consent to participate, thus our sample may not be representative of the overall 7th grade student population at this school. Although the racial/ethnic make-up of our sample was reflective of the overall student population, our gender distribution was not with more girls participating in the survey than boys. In addition, our sample included students attending a single school, thus limiting the ability to generalize to other populations of youth. Additional studies are needed to explore and understand these relationships among youths of different ages and from additional geographic areas. Third, our study is based on self-report data of the perpetration of physical and relational bullying behaviors and may be influenced by respondent recall of events or by social desirability. Finally, our model included only one risk (i.e., attitude towards violence) and one promotive factor (i.e., future expectations). Many risk and promotive factors, including social, cultural, psychological, and educational factors, can be considered in explaining and predicting bullying at school (Kokkinos & Kipritsi, 2011; Hemphill et al., 2012; Shetgiri, Lin, & Flores, 2013). Researchers also

suggest that students with a greater number of developmental strengths are less likely to engage in aggressive behaviors than students who report fewer developmental strengths (Donnon, 2009). To more fully understand the array of risk and promotive factors for physical and relational bullying perpetration, studies are needed that include future expectations and attitudes towards violence and additional individual-level and contextual factors.

Conclusions

This study contributes to our understanding of bullying behaviors and the positive aspects of youths' lives that may help them avoid such behavior. Our study is also one of the first to examine the role of future expectations as one such promotive factor. Future research should continue to explore potential risk and promotive factors for bullying involvement to better understand the mechanisms which influence engaging in aggressive and bullying behaviors. The results from this study provide useful direction for school nurses and other public health educators when developing interventions focused on decreasing youth aggression. Interventionists and school personnel should not only aim to change adolescents' attitudes toward bullying, but also to develop a positive view of the future.

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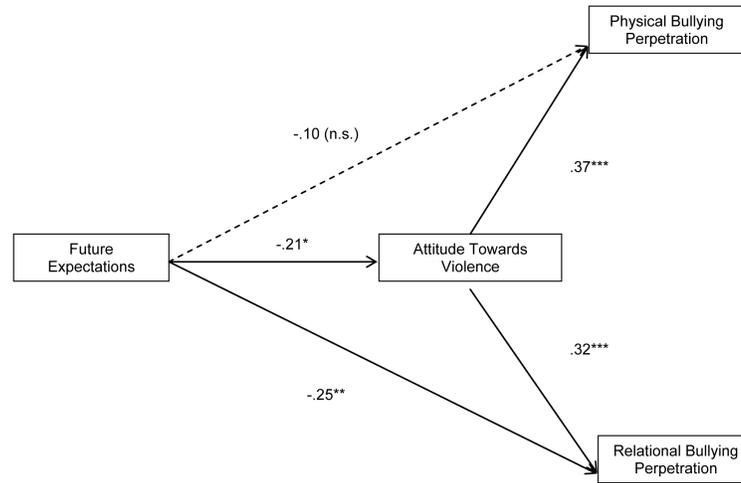


Figure 1. Mediation figure with standardized estimates of direct paths. Participant gender was included as a covariate in the model. Because all paths associated with gender were nonsignificant, it is not depicted in the model. *Note.* * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 1

Sample Description Presented by Gender

Variable	Total (n = 196)			Girls (n = 117)			Boys (n = 77)		
	% (n)	M	SD	% (n)	M	SD	% (n)	M	SD
Age		12.86	.49		12.82	.50		12.93	.48
Race									
Black	46 (89)			44 (51)			49 (38)		
White	28 (53)			28 (33)			26 (20)		
Mixed/Other Race	26 (51)			28 (32)			25 (19)		
Mother education									
Less than a high school diploma	7 (12)			8 (8)			3 (2)		
Completed high school or GED	13 (22)			16 (17)			8 (5)		
Some college	11 (20)			11 (12)			13 (8)		
Completed college	36 (62)			28 (30)			51 (32)		
Graduate or professional school	14 (24)			15 (16)			13 (8)		
Don't know	19 (32)			22 (24)			12 (8)		

Note. Two participants did not respond to the question concerning gender, but did complete the measures of interest. Thus, they were included in the analyses of the total sample.

Table 2

Descriptive Statistics for Study Variables Presented by Gender

Variable (range)	Total (n = 196)		Girls (n = 117)		Boys (n = 77)	
	M	SD	M	SD	M	SD
<i>Independent variables</i>						
Future expectations (1-4)	3.59	.43	3.63	.43	3.53	.45
Attitude towards violence (1-4)	2.29	.67	2.24	.71	2.36	.58
<i>Dependent variables</i>						
Relational bullying perpetration (0-45)	7.19	7.76	7.09	7.65	7.35	8.03
Physical bullying perpetration (0-15)	1.79	3.19	1.53	2.97	2.22	3.50

Note. T-test results indicated no significant difference between girls and boys on the variables of interest. Two participants did not respond to the question concerning gender, but did complete the measures of interest. Sample size for the study variables presented ranged from 189 to 196, 114 to 117, and 72 to 77 for total, girls, and boys, respectively.

Table 3

Correlations Between Study Variables by Gender

	1	2	3	4	5	6	7	8
<i>Study variables</i>								
1. Future expectations	--	-.07	-.36*	-.20	.04	.02	-.17	.15
2. Attitude towards violence	-.27*	--	.17	.21	.02	-.05	.15	-.09
3. Relational bullying perpetration	-.28*	.49*	--	.68*	-.08	.06	.01	-.08
4. Physical bullying perpetration	-.22*	.48*	.74*	--	-.06	.01	.17	-.17
5. Age	-.11	-.03	.09	.15	--			
<i>Race</i>								
6. Black	.04	.19*	.17	.16		--		
7. White	-.10	-.27*	-.10	-.13			--	
8. Mixed race/Other race	.05	.06	-.09	-.05				--

* *Note.* $p < .05$. Bivariate correlations for girls are reported below the diagonal. Boys are reported above the diagonal.

Table 4
Results of the Mediation Models Examining Future Expectations, Attitude Towards Violence, and Bullying Perpetration

	Unstandardized (95% CI)	Direct Effect (95% CI)	Indirect Effect (95% CI)	Total Effect (95% CI)
Future expectations → Attitude towards violence	-.33 [-.61, -.06]	-.21 [-.38, -.04]		
<i>Physical bullying</i>				
Attitude towards violence → Physical bullying perpetration	1.80 [1.07, 2.53]	.37 [.26, .48]		
Future expectations → Physical bullying perpetration	-.74 [-1.83, .35]	-.10 [-.24, .05]	-.08 [-.15, -.01]	-.18 [-.34, -.01]
Male (vs. female) → Physical bullying perpetration	-.42 [-1.37, .53]	-.06 [-.21, .08]		
<i>Relational bullying</i>				
Attitude towards violence → Relational bullying perpetration	3.83 [1.90, 5.75]	.32 [.19, .46]		
Future expectations → Relational bullying perpetration	-4.53 [-7.83, -1.23]	-.25 [-.42, -.07]	-.07 [-.14, -.002]	-.31 [-.48, -.15]
Male (vs. female) → Relational bullying perpetration	.54 [-1.65, 2.72]	.03 [-.10, .17]		

Note. CI indicates Confidence Interval. If the 95% CI of the standardized specific direct and indirect effect did not include 0, we concluded that there was a significant indirect effect. Effect estimates are standardized values unless otherwise noted.