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Childhood Bullying: A Review of Constructs, Contexts, and Nursing Implications

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Abstract

Bullying among children as a pervasive problem has been increasingly recognized as an important public health issue. However, while much attention has been given to understanding the impact of bullying on victims, it is equally important to examine predictors of bullying and potential outcomes for bullies themselves. The current literature on bullying lacks consensus on a utilizable definition of bullying in research, which can vary by theoretical framework. In an attempt to bridge the gaps in the literature, this paper will provide a review of the state of the science on bullying among children, including the major theoretical constructs of bullying and their respective viewpoints on predictors and correlates of bullying. A secondary aim for this paper is to summarize empirical evidence for predictors of bullying and victimization, which can provide strategies for intervention and prevention by public health nursing professionals. By calling attention to the variability in the bullying literature and the limitations of current evidence available, researchers can better address methodological gaps and effectively move toward developing studies to inform nursing treatment programs and enhance public health initiatives that reduce violence in school settings.

Keywords

bullying; violence; behavior; community health nursing; school health

Bullying among school-aged children continues to gain more recognition as an important problem. In the United States, prevalence rates of bullying or having been bullied at school at least once in the last two months have been reported at 20.8% physical, 53.6% verbal, 51.4% social, and 13.6% electronic (Wang, 2009). Bullying is most formally defined and most commonly framed in terms of the psychological deficits and social role of the bully. According to Kim and colleagues (2009), bullying is a form of aggressive behavior in which individuals in a dominant position intend to cause mental and/or physical suffering to others, and this behavior leads to significant psychological, physical, and emotional sequelae in bullies, victims, and bully/victims. However, three decades of research on bullying has led to numerous definitions of bullying (Barboza, 2009). For instance, Smorti, Menesini, and Smith (2003) pointed out that the definition of bullying is complex because it is characterized by three factors: 1) the bully's intention to cause harm to the victim, 2) the cause of harm being the perceived imbalance of power between the bully and the victim, and 3) the repetition of bullying behavior over time (Farrington, 1993; Olweus, 1999; Smith & Brain, 2000). Any variation in the three criteria can lead to different definitions of bullying. Further complications are introduced by the fact that different languages use different

definitions and terms to describe bullying (Smith et al., 1999). Furthermore, parents' and teachers' awareness of children's victimization obfuscate the conceptualization of bullying (Morita, Soeda, H., Soeda, K., & Taki, 1999; Smith et al., 1999; Rigby, 1994, 1997).

Despite the variability in its definition, bullying is generally considered a specific type of aggression in which: (1) the behavior is *intended* to harm or disturb, (2) the behavior occurs *repeatedly* over time, and (3) there is an *imbalance of power*, with a more powerful person or group attacking a less powerful one. Bullying may take several forms, including physical, verbal, relational, or cyber aggression, and the imbalance of power between victim and perpetrator may be physical or psychological. Physical bullying may be the most easily observed form of aggression, such as hitting or tripping, while verbal bullying involves spoken acts that are actively directed at the victim by the perpetrator, such as slander or intimidation through name-calling and threats. Relational bullying is a less typical and more subtle form of aggression that intends to harm by damaging the victim's relationships with others or impairing the victim's ability to maintain a social reputation and usual relationships among peers. This may involve spreading rumors about the victim and socially excluding the victim; this is sometimes called psychological bullying. Cyber bullying is a relatively new form of bullying that uses computer technology and the Internet, including cell phones and social networking sites, to spread rumors, intimidate directly, or damage the cyber-visual reputation of the victim.

While much attention has been given to the impact on bullies' victims, there is also substantial evidence that bullies themselves are vulnerable to a host of negative outcomes affecting their well-being and social functioning throughout adolescence and into adulthood (Nansel et al., 2001; Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003; Smokowski & Kopasz, 2005). However, the causes and consequences of bullying, including specific risk factors to identify children at risk for bullying, are much less straightforward. This likely stems from several gaps in the research. Most notably, the way in which "bullying" is defined and conceptualized varies according to the theoretical perspective used in conducting research, country of origin of the population sampled, and age of the children studied; consequently, methodological issues of assessment and measurement of bullying in research abound (Aalsma & Brown, 2008; Berger, 2007). Similarly, biases that affect teacher, parent, peer, and self-report questionnaire responses need to be better addressed.

A better understanding of the course and trajectories of bullying behaviors, and identification of predictors of bullying across developmental stages from childhood through adolescence, is crucial for early identification and prevention efforts (Kim, Boyce, Koh, & Leventhal, 2009). However, this cannot be done without first understanding the current state of the science and the ways in which different theoretical perspectives conceptualize bullying and its course. Thus, a primary aim of this paper is to describe the major theoretical constructs of "bullying" behavior and, within each framework, the implications for identifying purported risk factors and/or correlates of bullying. A second and related aim of this article is to highlight findings on short- and long-term outcomes for children who bully. Knowledge of bullying is a critical domain for public health nurses who work in the community, including with schoolchildren, because the majority of bullying incidents occur in or close to school, such as on playgrounds and in hallways (Smokowski & Kopasz, 2005). Consequently, this paper will conclude by addressing implications for broadening the literature on bullying in terms of nursing intervention and prevention strategies. Studies that provide empirical evidence for risk and protective factors associated with bullying, as well as their strengths, limitations, and practical implications, are summarized in Table 1.

Method

The author's aim for this article is to review the current literature on studying bullying in childhood. Using keywords such as "bullying," "violence," "aggression," and "victimization," an electronic search was performed through the Cumulative Index of Nursing and Allied Health, PsycINFO, and PubMed databases. Search limits included the following: 2000–2010, English, peer-review, human, All Child: 0–18. Articles were chosen for review based on their relevance to the author's inquiry, and those offering potential public health implications through the identification of factors associated with bullying and victimization were of particular interest. The author was interested in reviewing risk and protective factors that have been explored in the range of environments (e.g., home, school, community) and relationships (e.g., peer-peer, child-parent) a child experiences. Although only original research articles were chosen for review, a variety of methodologies, settings, and subject demographics was encouraged and included.

Results

Theoretical Perspectives on Bullying and its Predictors

Ethological perspective—The ethological framework examines bullying from the perspective of its advantageousness, such as through the lens of natural selection or Darwinian evolution. Dominance is a construct containing both aversive (e.g., fighting, bullying peers) and affiliative behaviors (e.g., leadership, reconciliation, focus of attention) used by individuals to compete for valued social resources in the early phases of group organization (Pellegrini, 2002). Moreover, both aggression and affiliation relate to dominance at different phases in formation of new group structures. These behaviors, in certain circumstances, can actually foster peer affiliation, including social attraction and interaction including peer preference, inclusion in a wider peer network, and reciprocal interactions (Pellegrini). Multiple international studies indicate that bullying peaks in 6th to 8th grade and then subsequently declines throughout high school (Chaux, Molano & Podlesky, 2001; Nansel et al., 2001; Kim et al., 2009; Chaux, Molano & Podlesky, 2009). From the ethological perspective, bullying may be viewed as innate or instinctual and may best be understood as a tool for achieving social dominance – particularly in adolescence – which may partially explain increased prevalence in middle school populations.

Ecological and socio-ecological theories—Ecological and socio-ecological models of bullying behavior focus on the complex interplay between individuals and their broader social environment (Swearer et al., 2006). Bullying and victimization in school are reciprocally influenced by the individual, family, school, peer group, nearer community, and society. Individual characteristics, such as self-confidence, helplessness, race/ethnicity, and past experience as a victim of bullying may predispose children to bullying, but the enactment of behavior may depend on the context and environments that subsequently encourage or suppress such behavior. The ecological framework considers not just the immediate developmental environment, such as the emotional environment provided by parents or teachers, but the more distal context, which does not directly include the participants but may nonetheless significantly impact them (Barboza, 2009). For example, school policies exert an influence on specific behaviors of teachers and/or students in response to bullying. Furthermore, even more distal factors such as societal attitudes (e.g., opinions on gun legislation; public acceptance of "hazing" in academic and sports environments; the tendency to dismiss physical violence with a "boys will be boys" attitude) must be considered (Barboza, 2009). The specific role of the media, which reflects cultural or subcultural values and attitudes, is relevant in this regard. Finally, beyond mere contextual factors, the ecological approach considers temporal aspects of behavior. Within

bullying, this is reflected in the decreased prevalence of bullying behaviors as children become more familiar with one another in school (e.g., increasing age) or with changes in societal attitudes towards aggression and social norms over time.

Cognitive and social-cognitive theories—Since cognition is directly impacted by neurobiology, cognitive theories of bullying are inextricably tied to evidence from studies on neurofunctioning and anatomical deficits. While much research has been conducted on the relationship between neurochemical factors and clinical psychiatric diagnoses, including antisocial personality disorder, there is a dearth of research investigating specific brain structures/areas and aggressive behavior as it relates to bullying behavior in children. The psychopathy literature has emphasized dysregulation in emotional processing, attributing key influences to structural damage in the amygdala. Further, behavioral dysregulation, including impulsivity, has been associated with brain dysfunction (Soderstrom et al., 2000; Liu & Wuerker, 2005), such as frontal lobe lesions (Segun, 2004), though these structures may be specifically implicated in antisocial problems and violence but may also be part of a more broad, complex circuit that may or may not include bullying (Segun).

The role of cognitive processing on bullying, however, appears to also be related to the ways in which one processes social information – raising the importance of social cognition. Huesmann's unified theoretical model of social information processing (as cited in McMahon, Felix, Halpert, & Petropoulos, 2009) suggests that the most important filtering process between witnessing aggressive acts and re-enacting similarly aggressive acts are one's normative beliefs about aggression (i.e., views about the acceptability of aggression). A recent study of early adolescent, urban, African American youth (McMahon et al., 2009) found that exposure to community violence was associated with more retaliatory beliefs supporting aggression, which led to less self-efficacy about their own ability to control aggression and in turn led to even more aggressive behavior. Rather than deficits in cognitive ability alone, normative beliefs about aggression, including the acceptability of aggression, mediate the interpretation of external social-environmental-behaviors, which is consistent with the social information processing theory.

Genetic and other biologic theories—Genetic and non-neurobiologic studies for aggression suggest that low autonomic tone may play a role in specific aggressive behaviors, including bullying. One of the most replicable findings in the literature on aggression concerns the finding of low resting heart rate among aggressive youth (Dietrich et al., 2007; Farrington, 1998). Indeed, in one study using both spectral analysis as well as the Child Behavior Check List (CBCL), externalizing and internalizing problems in preadolescents were related to divergent autonomic patterns: externalizing problems were associated with decreased heart rate and increased vagal tone, and internalizing problems with increased heart rate and decreased vagal tone (Dietrich et al.). Both early malnutrition and birth complication have been linked to externalizing behavior across childhood (Liu et al., 2004; Liu et al., 2009). Furthermore, autonomic under-arousal may facilitate disruptive or sensation-seeking behavior (Raine et al., 1998), whereas autonomic over-arousal may play a role in behavioral withdrawal and low sociability. Autonomic dysregulation may also increase vulnerability of children already at risk for negative behaviors due to environmental influences, such as domestic violence in the home (Raine, 2002).

Genetic factors of relevance may include endocrine variables (Ball et al., 2008). A recent study assessed aggressive and nonaggressive boys and girls for cortisol, testosterone, prolactin, and growth hormone (Yu & Shi, 2009). Controlling for age, grade, stage of pubertal development, and economic status of families, testosterone levels were significantly positively correlated with aggressive behavior in both boys and girls. Furthermore, particular physiologic characteristics, including vital sign trends, circulating levels of various

hormones and chemicals, and background knowledge of a genetic component, may serve as objective criteria, which, used in combination with a descriptive picture of a particular child's behavior, may aid nursing professionals' early identification of children at risk for exhibiting bullying behavior.

Differences in Bullying by Gender, Race/Ethnicity, and Age

Gender—The literature consistently reports that males are more likely to exhibit and self-report physical and direct forms of bullying, whereas females engage more in relational and indirect forms of bullying (Nansel et al., 2001). In addition, research investigating the motives and mechanisms of bullying suggest a differential purpose and set of outcomes among different gender. Examining whether or not children's bullying behavior is positively related to their desire to be accepted by other bullies, Olthof (2008) found that, among boys, antisocial involvement in bullying was related to a desire to be accepted by other antisocial boys and, interestingly, to being rejected by boys in general. Among girls, antisocial involvement in bullying was related to a desire to be accepted by boys in general. The finding that boys' and girls' desires to be accepted by antisocial boys is related to their own antisocial behaviors further suggesting that one source of individual differences in children's susceptibility to negative peer influence is which other children they choose as the target for their need to belong (Olthof & Goosens, 2008). Individual stability of bullying behavior over time does not appear to differ by gender (Kim et al., 2009). In fact, aggressive bullying has been found repeatedly by several studies to be more stable a trait throughout life than victimization in both sexes (Camodeca et al., 2002). This suggests that factors other than the bully-victim dyad are responsible for the perpetuation of the bullying role, including reinforcement from the expectations of and reputation amongst peers; bullies' expectations of obtaining advantages or psychological rewards from bullying; or predisposing factors, including psychological, biological, and social/environmental circumstances.

Interestingly, Vaillancourt, deCatanzaro, Duku and Muir (2009) demonstrated that, while controlling for age and pubertal status, on average, verbally bullied girls produced less testosterone and verbally bullied boys produced more testosterone than their non-bullied counterparts. Similar trends were evident when examining testosterone in the context of social and physical bullying. The researchers hypothesize that results may reflect differences in coping styles, including that girls tend to internalize their rejection (e.g., depression, anxiety), whereas boys tend to externalize (e.g., aggressive disruption and lashing out) their abuse. Androgen dynamics may help explain not only a vulnerability factor but an element of the social response, implying that aggressive behavior may be a response to social conditions, concurrently measurable by quantifiable changes in the hypothalamic-pituitary-adrenal axis and serum androgen levels.

Cross-cultural comparison—Research on the prevalence and nature of bullying among students of different ethnicities lacks consistency and accuracy, likely due in large part to cultural influences (ethnicity or nationality) which affect the way children perceive the concept of bullying (Aalsma & Brown, 2008). Cultural differences in attitudes regarding violence as well as perceptions, encouragement, and values regarding bullying likely exist (Berger, 2007). In some studies, bullying appears to be more common among younger, male, African-American and Native American students (Carlyle & Steinman, 2007; Wang et al., 2009), but in others bullying was reported at the lowest frequency for African-Americans (Aalsma & Brown; Barboza, 2009). African-American adolescents consistently appear to be involved in more bullying (physical, verbal, or cyber) but less victimization (verbal or relational); however, this is confounded by the use of self-report methods in which culture may influence one's likelihood of self-identifying as a bully or victim, or both

(Aalsma & Brown). Alternatively, viewing behavior commonly described by researchers as ‘bullying’ as normative may be culturally influenced.

Modest racial/ethnic variation is evident among associations between bullying and family, peer, and school factors (Spriggs et al., 2007). In a nationally representative sample of 6th to 10th graders, parental communication, social isolation, and classmate relationships were similarly related to bullying across racial/ethnic groups (Spriggs et al.). Conversely, school attachment and performance were inconsistently related to bullying behavior across race/ethnicity. Although school satisfaction and performance were negatively associated with bullying involvement for White and Hispanic students, school factors were largely unrelated to bullying among African-American students. Bullying behaviors, though, were consistently related to peer relationships across African-American, White, and Hispanic adolescents (Spriggs et al.).

Correlates of Bullying

As discussed previously, several theoretical approaches have identified putative risk factors for bullying, including psychological, emotional, biologic, and early environmental variables. However, bullying is a complex construct that appears to be impacted by numerous confluences that depend on a child’s underlying vulnerability factors, such as physiologic, cognitive, and emotional traits, and specific environmental circumstances like parental expectations and family socioeconomic status.

One study that illustrates the complexity of conceptualizing risk factors found that bullying was correlated with a number of social and environmental factors. Specifically, bullying was greater among children who watched television frequently, lacked teacher support, had themselves been bullied, attended schools with unfavorable environments, had emotional support from their peers, and had teachers and parents who did not place high expectations on their school performance (Barboza, 2009). Alcohol use and smoking have been positively associated with both bullying and being bullied, whereas poorer perceived school climate was related only to bullying (Nansel et al., 2001). In this same study, while smoking was positively associated with bullying and coincident bullying/ being bullied among all groups, the magnitude of the relationship was greater for middle school youth than high school youth. Psychological traits that underlie bullying and aggression may also predispose certain children to substance use, especially at younger stages, such as pre- and early-adolescence.

Findings implicating a variety of individual and multi-level contextual factors have been replicated in research outside the U.S. Chaux, Molano and Podlesky (2009) found among Hispanic students in Colombia that schools with higher levels of bullying are also schools where students tend to have lower levels of empathy, anger management, and trust; more beliefs supporting aggression; more hostile attributional biases; less democratic families; and more violent neighborhoods. In Korea, increased risk of bullying was greater among boys with smaller height, greater weight, lower socioeconomic status, lower father educational levels, and higher mother educational levels; bullying was also correlated with lower height, urban residence, and being from a non-intact family among girls (Kim et al., 2009).

Early influences and predisposing factors—Children’s early environments play a vital role in predicting later behavior throughout growth and development. However, the majority of etiological models of aggression do not account for the earliest years of a child’s life. Corvo and deLara (2010) note that aggressive behavior can be seen in infancy and toddlerhood, and that aggression may peak during elementary school where children learn how to control aggressive urges and actions through social learning and cognitive development. On the other hand, the authors also emphasize the relationship between

psychological factors, early environmental influences, and aggression (Corvo & deLara). Parental/caregiver attachment and behavior are consistently identified as key influences on a child's ability to engage in healthy relationships throughout all developmental stages. Substantial research highlights the role of attachment in healthy development and healthy interpersonal conduct. Attachment can be disrupted by caregiver neglect and abuse, with some attachment problems leading to increased risk of developmental and personality disorders (Corvo & deLara). Early exposure to interparental physical violence is also related to direct bullying in both genders, and observation of family violence may impact self beliefs, ideas, and norms about the use of aggression as an appropriate form of behavior (Corvo & deLara).

Outcomes among child bullies—Students involved in bullying and victimization are more likely to have academic and social adjustment problems (Estell et al., 2009). Though one study by Chaux and colleagues (2009) indicates that increasing age is a protective reducing factor for bullying in schools, several studies have found that aggressive behavior and severity of aggression to be stable throughout life (Huessman, Dubow, & Boxer, 2009; Kim et al., 2009). Compared with life-course-persistent low aggressive individuals, life-course-persistent high aggressive individuals had consistently poorer outcomes across domains of life success, criminal behavior, and psychosocial functioning at age 48 (Huessman et al., 2009).

Early aggression appears to reflect a more stable trait that underlies a variety of acute and insidious academic, social, and behavioral problems. Early signs of bullying behavior, as young as elementary school children under 10 years old, may be an indicator of risk for psychological problems, academic maladjustment, and negative psychosocial outcomes beginning in middle and high school and lasting throughout life. A disproportionately high number of bullies underachieve in school and later perform below potential in employment settings (Smokowski & Kopasz, 2005). White and Loeber (2008) suggest that although aggression predicts both bullying and serious delinquency, they are separate behaviors. Moreover, while bullying behavior in general may decrease as children mature from elementary to middle to high school, its presence may indicate a more inherent tendency for traits like aggression which can remain stable and make individuals vulnerable to a variety of negative outcomes extending into and beyond adolescence.

Bullying behavior can be seen as an indicator of risk for various mental health disorders in adolescence. Kaltiala-Heino and colleagues (2000) found that involvement in bullying was associated with an increased risk of two or more co-occurring mental disorders, including depression, anxiety, excessive psychosomatic symptoms, frequent excessive drinking, and use of other substances than alcohol. They also found that associations of bullying with mental health problems were similar among girls and boys. However, in one study that investigated the associations between childhood bullying behaviors at age 8 years and attempted and completed suicides up to age 25 years, Klomek and colleagues (2009) found that the association of frequent bullying at age 8 years with a high risk for later suicidal behavior among boys became non-significant when controlling for baseline psychopathology as well as depression. Therefore, bullying remains a red flag for stand-alone adverse consequences in life, but also may be an indicator of more inherent psychiatric and psychosocial symptoms and conditions, the assortment of which may have specific risks, such as suicide and domestic violence.

Discussion

Bullying is an important public health issue around the world, and although there has been an increasing effort to reduce its incidence, most anti-bullying campaigns have led to

disappointing results. Currently, most school-based intervention programs have been met with limited, if any, success, and some have even produced negative outcomes (Merrell et al., 2008). To date, the Bergen project of Norway (Olweus, 1991) is considered the most successful large-scale anti-bullying campaign. It aimed to increase awareness and active response to bullying behavior in teachers, parents, and peers, as well as to improve the school social environment through changes such as a more attractive school playground. Although the Bergen program has been used as a model for many anti-bullying campaigns (e.g. Pepler et al., 1994; Stevens et al., 2000), these adaptations have yielded only modest success, even when supported by a large supply of resources. It remains unclear how factors such as program length, type of intervention, and effort invested by school have contributed to these subsequent programs' lack of success, and no clear evidence seems to exist over which components are most important (Smith et al., 2003). A recent meta-analysis by Merrell et al. (2008) also demonstrated that the majority of intervention efforts in 16 school-based programs were unassociated with any meaningful or clinically important positive outcomes. There was no apparent pattern in which kinds of interventions did or did not lead to significant outcomes, which were dispersed somewhat uniformly across the types of interventions, measurement methods, and classification variables.

The lack of success in the current anti-bullying programs may very well reflect the scarcity of evidence for bullying behavior. A better understanding of the mechanisms involved in the behavioral development of both victims and bullies is critical to more effectively targeting intervention efforts. One weakness of the Bergen program, for example, concerns the parental involvement component (Stevens et al., 2001). A failure to address this limitation in subsequent intervention programs may be responsible for a lack of program success in certain populations. Knowing the mechanism through which family processes are protective against development of bullying and victimization tendencies, for example, can inform the best way to achieve and increase family involvement in certain populations. It can also provide insight into alternative methods that may work through the same mechanisms when family involvement is not feasible.

The present review on limitations of available evidence, backed by the relatively low rates of success in current intervention programs, holds important implications for future research and anti-bullying programs.

Implications for Future Research

Future research should focus on better understanding causality, reciprocal relationships and interactions between bullying and its negative correlates, and its specific short- and long-term consequences. Researchers can help clarify causes and potential treatments for bullying by distinguishing between different dimensions (i.e., reactive vs. proactive, bully vs. bully-victim) and better accounting for variations across gender, ethnicity, and other demographic characteristics. In particular, a cultural conception of and data on specific minority groups, including Middle Eastern and Native American student populations, is notably lacking in the literature.

Much of the data on bullying risks and outcomes are cross-sectional, making causal inferences impossible. Longitudinal inquiries, especially in better understanding trait stability in the context of aggression and bullying, would be helpful in both gaining insight into short- and long-term outcomes for these students. In addition, development of assessment instruments that truly reflect the problem behavior help improve the validity of the literature, as current research findings are somewhat confounded by developmental and cultural differences in how children perceive and respond to questions about bullying behaviors. While self-report is valuable and can contribute to understanding how the concept of bullying is perceived, studies should avoid relying solely on these. Multiple informants

should be used when possible, and the establishment of a psychometrically valid and reliable bullying scale, specifically, may be helpful in this regard. Further, use of such models as the Behavioral-Ecological Model (BEM) (Dreseler-Hawke & Whitehead, 2009) may also be helpful in guiding both research and intervention that can be utilized across the school-based health promotion community.

Implications for Nurses

The present review also points to an important role for public health and school nurses in developing and implementing intervention programs. Bullying should be regarded as an indicator of potentially serious deficits and as a behavior that is a socially-learned adaptation within a multi-level ecological context. Given their positioning within the academic setting, school nurses can function in both the assessment and treatment of childhood bullying, and their ability to accomplish these will be strengthened greatly as the underlying mechanisms of bullying-associated behaviors become clearer. While mental health professionals may play a role in screening children for other psychiatric symptoms, of which bullying may be a symptom or indicator, school nurses can provide play an integral role in performing school-based behavioral assessments, including observational measures, and public health nurses can assist in the identification of other co-occurring health issues in the child, family, or population, such as substance abuse, depression, and chemical/hormonal imbalances.

Public health nurses who work in the community and school nurses can facilitate preventive and early intervention activities at school for children identified as bullies. Nansel and colleagues (2003) emphasize the need for programs designed to reduce violent behaviors to address less severe forms of aggressive behavior rather than only the most overt and severe forms – and in particular, bullying. Intervention programs may include psychosocial support programs, such as group therapy for anger-management and development of alternative coping skills to appropriately deal with aggression. The use of older children to socialize with younger children and provide positive models for prosocial behavior (e.g. Big Brother, Big Sister programs) may be advantageous, particularly from a social learning framework. Community service groups and positive peer group activities may be encouraged as a way for bullies to engage in positive social learning and develop adaptive emotional skills, as well as providing them with opportunities to form closer relationships with peers. Public health nurses can also help coordinate family-centered care by communicating with parents regarding the importance of reducing violence in the home, excessive television watching, and other potential risk factors while actively promoting protective factors like early cognitive stimulation.

Although there will likely be continued implementation of broad efforts in classrooms and schools, such as through encouraging peer involvement in resolving conflicts constructively, it will become increasingly important to recognize the specific needs of the community as well as individual children. School programs should be careful to reflect aspects of the community environment so that they can extend beyond the classroom, and they should also recognize how a student's response to bullying attitudes is affected by individual differences like cultural background and biological callous/unemotional predisposition. This ability will rely heavily on stronger empirical evidence on the conditions which predispose, facilitate, promote, and prevent bullying and victimization behavior in school aged children.

As the topic of bullying continues to emerge as an important pediatric, family, psychiatric, and community health issue, nurses can be at the forefront of leading sensitive, evidence-based education, research, and intervention programs that promote the health of both bullies as well as the schools and communities in which they reside. Bullying is a behavior, not a diagnosis, and research, assessment, and interventions targeted at childhood bullying must take into account the culture, context, and individual characteristics in better understanding

risk factors for and interventions to reduce bullying. School ecology is particularly important, and teachers', administrators', and school health professionals' perceptions of and reactions to bullying play a vital role in shaping how students behave. Approaches to early identification, school-based initiatives, and support for prevention and intervention, as well as education by school and public health nurses, must take into account the multifactorial processes that give rise to childhood aggression. Thus, there is an increasing need for studies which address the methodological gaps in the available literature so that nursing treatment programs and public health initiatives can be better informed to reduce violence behavior in school settings.

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References

- Aalsma MC, Brown JR. What is bullying? *Journal of Adolescent Health*. 2008; 43(2):101–102. [PubMed: 18639781]
- Ball HA, Arseneault L, Taylor A, Maughan B, Caspi A, Moffitt TE. Genetic and environmental influences on victims, bullies and bully-victim in childhood. *Journal of Child Psychology and Psychiatry*. 2008; 49(1):104–112. [PubMed: 18181884]
- Barboza G. Individual characteristics and the multiple contexts of adolescent bullying: An ecological perspective. *Journal of Youth and Adolescence*. 2009; 38(1):101–121. [PubMed: 19636795]
- Berger KS. Update on bullying at school: Science forgotten? *Developmental Review*. 2007; 27:90–126.
- Bollmer JM, Milich R, Harris MJ, Maras MJ. A friend in need: The role of friendship quality as a protective factor in peer victimization and bullying. *Journal of Interpersonal Violence*. 2005; 20(6): 701–712. [PubMed: 15851537]
- Camodeca M, Goossens FA. Children's opinions on effective strategies to cope with bullying: The importance of bullying role and perspective. *Educational Research*. 2005; 47(1):93–105.
- Camodeca M, Goossens FA, Terwogt MM, Shuengel C. Bullying and victimization among school-age children: Stability and links to proactive and reactive aggression. *Social Development*. 2002; 11(3): 332–345.
- Carlyle KE, Steinman KJ. Demographic differences in the prevalence, co-occurrence, and correlates of adolescent bullying at school. *Journal of School Health*. 2007; 77(9):623–629. [PubMed: 17970866]
- Corvo K, deLara E. Towards an integrated theory of relational violence: Is bullying a risk factor for domestic violence? *Aggression and Violent Behavior*. 2010; 15(3):181–190.
- Dietrich A, Riese H, Sondijker F, Greaves-Lord K, van Roon A, Ormel J, et al. Externalizing and internalizing problems in relation to autonomic function: A population-based study in preadolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2007; 46(3):378–386. [PubMed: 17314724]
- Dresler-Hawke E, Whitehead D. The behavioral ecological model as a framework for school-based anti-bullying health promotion interventions. *Journal of School Nursing*. 2009; 25:195–204. [PubMed: 19363105]
- Estell DB, Farmer TW, Irvin MJ, Crowther A, Akos P, Boudah DJ. Students with exceptionalities and the peer group context of bullying and victimization in late elementary school. *Journal of Child and Family Studies*. 2009; 18:136–150.
- Farrington, DP. Understanding and preventing bullying. In: Tonry, M., editor. *Crime and justice: A review of research*. Vol. 17. Chicago: University of Chicago Press; 1993. p. 348–458.
- Farrington, DP. Predictors, causes, and correlates of male youth violence. In: Tonry, M.; Moore, MH., editors. *Youth violence*. Chicago: The University of Chicago Press; 1998. p. 421–476.
- Hay DF, Payne A, Chadwick A. Peer relations in childhood. *Journal of Child Psychology & Psychiatry*. 2004; 45:84–108. [PubMed: 14959804]

- Huessman LR, Dubow EF, Boxer P. Continuity of aggression from childhood to early adulthood as a predictor of life outcomes: Implications for the adolescent-limited and life-course persistent models. *Aggressive Behavior*. 2009; 35:136–149. [PubMed: 19189380]
- Kaltiala-Heino R, Rimpela M, Rantanen P, Rimpela A. Bullying at school—an indicator of adolescents at risk for mental disorders. *Journal of Adolescence*. 2000; 23(6):661–674. [PubMed: 11161331]
- Kim YS, Boyce WT, Koh Y, Leventhal BL. Time trends, trajectories, and demographic predictors of bullying: S prospective study in Korean adolescents. *Journal of Adolescent Health*. 2009; 45:360–367. [PubMed: 19766940]
- Klomek MSS, Sourander A, Niemela S, Kumpulainen K, Piha J, Tamminen T, et al. Childhood bullying behaviors as a risk for suicide attempts and completed suicides: A population-based birth cohort study. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2009; 48(3): 254–261. [PubMed: 19169159]
- Liu J, Raine A, Venables P, Mednick SA. Malnutrition at age 3 years predisposes to externalizing behavior problems at ages 8, 11 and 17 years. *American Journal of Psychiatry*. 2004; 161:2005–2013. [PubMed: 15514400]
- Liu J, Wuerker A. Biosocial bases of violence: Implications for nursing research. *International Journal of Nursing Studies*. 2005; 42:229–241. [PubMed: 15680620]
- Liu J, Raine A, Wuerker A, Venables P, Mednick SA. The association of birth complications and externalizing behavior in early adolescents. *Journal of Research on Adolescence*. 2009; 19(1):93–111.
- Ma L, Phelps E, Lerner JV, Lerner RM. Academic competence for adolescents who bully and who are bullied: Findings from the 4-H study of positive youth development. *Journal of Early Adolescence*. 2009; 29:862–898.
- McMahon SD, Felix ED, Halpert JA, Petropoulos LAN. Community violence exposure and aggression among urban adolescents: Testing a cognitive mediator model. *Journal of Community Psychology*. 2009; 37(7):895–910.
- Merrell KW, Gueldner BA, Ross SW. How effective are school bullying intervention programs? A meta-analysis of intervention research. *School Psychology Quarterly*. 2008; 23(1):26–42.
- Morita, Y.; Soeda, H.; Soeda, K.; Taki, M. Japan. In: Smith, PK.; Morita, Y.; Junger-Tas, J.; Olweus, D.; Catalano, R.; Slee, P., editors. *The nature of school bullying A cross-national perspective*. London: Routledge; 1999. p. 309–323.
- Olweus, D. Bully/victim problems among schoolchildren: basic facts and effects of a school based intervention program. In: Pepler, DJ.; Rubin, KH., editors. *The Development and Treatment of Childhood Aggression*. Hillsdale: Lawrence Erlbaum Associates; 1991. p. 411–448.
- Olweus, D. Sweden. In: Smith, PK.; Morita, Y.; Junger-Tas, J.; Olweus, D.; Catalano, R.; Slee, P., editors. *The nature of school bullying. A cross-national perspective*. London: Routledge; 1999. p. 7–27.
- Nansel TR, Overpeck M, Pilla RS, Ruan WJ, Simons-Morton B, Scheidt P. Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *JAMA: The Journal of the American Medical Association*. 2001; 285(16):2094–2100. [PubMed: 11311098]
- Nansel TR, Overpeck M, Haynie DL, Ruan WJ, Scheidt P. Relationships between bullying and violence among US youth. *Archives of Pediatric and Adolescent Medicine*. 2003; 157(4):348–353.
- Pellegrini AD. A longitudinal study of boys' rough-and-tumble play and dominance during early adolescence. *Journal of Applied and Developmental Psychology*. 1995; 16:77–93.
- Pellegrini AD. Affiliative and aggressive dimensions of dominance and possible functions during early adolescence. *Aggression and Violent Behavior*. 2002; 7:21–31.
- Pellegrini AD. The roles of aggressive and affiliative behaviors in resource control: A behavioral ecological perspective. *Developmental Review*. 2008; 28:461–487.
- Pepler DJ, Craig WM, Ziegler S, Charach A. An evaluation of an anti-bullying intervention in Toronto schools. *Canadian Journal of Community Mental Health*. 1994; 13:95–110.
- Raine A. Annotation: The role of prefrontal deficits, low autonomic arousal and early health factors in the development of antisocial and aggressive behavior in children. *Journal of Child Psychology & Psychiatry & Allied Disciplines*. 2002; 43:417–434.

- Raine A, Reynolds C, Venables PH, Mednick SA, Farrington DP. Fearlessness, stimulation-seeking, and large body size at age 3 years as early predispositions to childhood aggression at age 11 years. *Archives of General Psychiatry*. 1998; 55(8):745–751. [PubMed: 9707386]
- Rigby K. Psychosocial functioning in families of Australian adolescent schoolchildren involved in bully/victim problems. *Journal of Family Therapy*. 1994; 16:173–187.
- Rigby K. Schoolchildren's perceptions of their families and parents as a function of peer relations. *Journal of Genetic Psychology*. 1997; 154:501–513. [PubMed: 8176392]
- Roberts WB. The bully as victim. *Professional School Counseling*. 2000; 4:148–156.
- Segun JR. Neurocognitive elements of antisocial behavior: Relevance of an orbitofrontal cortex account. *Brain and Cognition*. 2003; 55:185–197.
- Smith PK, Brain P. Bullying in schools: Lessons from two decades of research. *Aggressive Behavior*. 2000; 26:1–9.
- Smith, PK.; Morita, Y.; Junger-Tas, J.; Olweus, D.; Catalano, R.; Slee, P., editors. The nature of school bullying: A cross-national perspective. London: Routledge; 1999.
- Smith PK, Ananiadou K, Cowie H. Interventions to reduce school bullying. *The Canadian Journal of Psychiatry*. 2003; 48:591–599.
- Smokowski PR, Kopasz KH. Bullying in school: an overview of types, effects, family characteristics, and intervention strategies. *Children and Schools*. 2005 April; 27(2):101–111.
- Smorti A, Menesini E, Smith PK. Parents' definitions of children's bullying in a five-country comparison. *Journal of Cross-Cultural Psychology*. 2003; 34:417–432.
- Soderstrom H, Tullberg M, Wikkelsoe C, Ekholm S, Forsman A. Reduced regional cerebral blood flow in non-psychotic violent offenders. *Psychiatry Research: Neuroimaging*. 2000; 98:29–41.
- Solberg ME, Olweus D, Endresen IM. Bullies and victims at school: Are they the same pupils? *British Journal of Educational Psychology*. 2007; 77:441–464. [PubMed: 17504556]
- Spriggs AL, Iannotti RJ, Nansel TR, Haynie DL. Adolescent bullying involvement and perceived family, peer and school relations: Commonalities and differences across race/ethnicity. *Journal of Adolescent Health*. 2007; 41(3):283–293. [PubMed: 17707299]
- Stevens V, De Bourdeaudhuij I, Van Oost P. Bullying in Flemish schools: an evaluation of anti-bullying intervention in primary and secondary schools. *British Journal of Educational Psychology*. 2000; 70:195–210. [PubMed: 10900778]
- Stevens V, De Bourdeaudhuij I, Van Oost P. Anti-bullying interventions at school: aspects of programme adaptation and critical issues for further programme development. *Health Promotion International*. 2001; 16(2):155–167. [PubMed: 11356754]
- Swearer, SM.; Peugh, J.; Espelage, DL.; Siebecker, AB.; Kingsbury, WL.; Bevins, KS. A socioecological model for bullying prevention and intervention in early adolescence: an exploratory examination. In: Jimerson, SR.; Furlong, M., editors. The handbook of school violence and school safety: from research to practice. Mahwah, NJ: Lawrence Erlbaum Associates; 2006. p. 257–273.
- Vaillancourt T, deCatzano D, Duku E, Muir C. Androgen dynamics in the context of children's peer relations: an examination of the links between testosterone and peer victimization. *Aggressive Behavior*. 2009; 35:103–113. [PubMed: 19021234]
- Viding E, Simmonds E, Petrides KV, Frederickson N. The contribution of callous-unemotional traits and conduct problems to bullying in early adolescence. *Journal of Child Psychology and Psychiatry*. 2009; 50(4):471–481. [PubMed: 19207635]
- Wang J. School bullying among adolescents in the United States: Physical, verbal, relational, and cyber. *Journal of Adolescent Health*. 2009; 45(4):368–375. [PubMed: 19766941]
- White NA, Loeber R. Bullying and special education as predictors of serious delinquency. *The Journal of Research in Crime and Delinquency*. 2008; 45(4):380–397.
- Yu Y, Shi J. Relationship between levels of testosterone and cortisol in saliva in aggressive behaviors of adolescents. *Biomedical and Environmental Sciences*. 2009; 22(1):44–49. [PubMed: 19462687]
- Zimmerman FJ, Glew GM, Christakis DA, Katon W. Early cognitive stimulation, emotional support, and television watching as predictors of subsequent bullying among grade-school children. *Archives of Pediatrics and Adolescent Medicine*. 2005; 159:384–388. [PubMed: 15809395]

Table 1

Select Studies Summarizing Current Literature on Bullying Risk and Protective Factors

<i>Risk Factors</i>	<i>Studies/ Findings</i>	<i>Strengths</i>	<i>Limitations</i>	<i>Implications</i>
Biological Predisposition	Viding (2009): Higher levels of callous-unemotional (CU) traits were associated with higher levels of direct bullying. These traits may mediate the underlying susceptibility of children to bully others directly.	First study to look at contribution of CU traits to bullying	Participants in this study represented a narrow age range (11–13 years) Behavior problems and prosocial behaviors were measured by self-report	May speak to need for screening and non-traditional bullying interventions (educative and punitive) for children with strong CU tendencies.
Media exposure	Zimmerman et al. (2005): Excessive television watching at age 4 was a significant predictor for subsequent bullying at age 6–11.	Examined the effect of early exposure to general television in a representative, longitudinal sample	Lack of control of variables associated with parents who allow children to watch excessive television Content watched was unmeasured	Reducing television viewing during early childhood may reduce the risk of developing bullying behavior. Provides insight into creating home environments protective against bullying
	Kuntsche et al. (2006): Across eight countries, verbal bullying was significantly associated with adolescent television viewing while physical bullying was significantly associated with television viewing only in countries where weekend viewing is high	Used a robust, multi-country sample (N=31,177) First to explore associations between adolescent television viewing and specific forms of bullying	Cross-sectional data limits the ability to conclude causation. Information about television content or with whom it was watched was not collected.	Informs how restriction and supervision of television viewing may help reduce verbal and physical bullying
Exposure to family/ domestic violence	Baldry (2003): Exposure to inter-parental violence is associated with both bullying and victimization in school.	Controlled for direct child abuse and thus differentiates between the effect of exposure to violence vs. the effect of both exposure and direct victimization at home Used a nonclinical sample	Measures were based on self-report by children Sample was restricted to Italian schoolchildren from Rome	Early intervention at school and other away-from-home environments can help prevent bullying and aggressive behaviors by teaching children more constructive ways to interact with peers and express anger.
Exposure to community violence	McMahon et al. (2009): In a high-risk population of poor, urban, African American youth, community violence influenced social cognitions within youth that promote aggressive behavior.	Focus on a specific, high risk population Explores the poorly understood cycle of violence and its direct and indirect impact on aggression	Several uncontrolled factors at both the individual and community level Longitudinal portion used a small sample size, self-report, and covered only two points over a year	Exposure to community violence triggers individual processes, significantly affecting how individuals feel, behave, and think—specifically the belief that aggression is justifiable when provoked; this may inform for more effective community-based and individual programs
<i>Protective Factors</i>	<i>Studies/ Findings</i>	<i>Strengths</i>	<i>Limitations</i>	<i>Implications</i>
Cognitive Stimulation, Emotional Support	Zimmerman et al. (2005): Cognitive stimulation and emotional support at age 4 were independently protective against bullying behavior at later ages (6–11 years)	Investigates early cognitive stimulation and emotional support affect Used a representative longitudinal data set and multiple controls	Unmeasured characteristics associated with parents who provide children with emotional support and cognitive stimulation may contribute significantly to the relationships reported in this study.	Understanding underlying causal factors may provide parents valuable insight into creating home environments protective against subsequent bullying behavior
Parental Communication	Spriggs et al. (2007): After controlling for peer relations, family communication was	Used a nationally-representative sample	Cross-sectional data limits conclusions about causation.	Supports the importance of family communication as an intervention target

<i>Risk Factors</i>	<i>Studies/ Findings</i>	<i>Strengths</i>	<i>Limitations</i>	<i>Implications</i>
	protective against bullying behaviors among white, black, and Hispanic adolescents	Investigated school, family, and peer factors to bullying across ethnic/racial groups	Only main effects were examined	and potential screening factor in identifying risk
Family factors, particularly maternal warmth	Bowes et al. (2010): Family factors (sibling warmth, maternal warmth, and family atmosphere) were associated with positive emotional and behavioral adaptation following bullying victimization in primary school.	A genetically sensitive twin differences design Used multiple informants	Since the sample is limited to twins, generalizability is uncertain Was limited to 10–12 year olds	Highlights the important role of families and family factors (e.g., warmth of relationships) in school-based intervention programs for bullying victimization and the need for building resilience in bullied children