Title
Environmental influences, the developing brain, and aggressive behavior

Permalink
https://escholarship.org/uc/item/6rc5s947

Journal
Theory Into Practice, 46(2)

ISSN
0040-5841

Authors
Hudley, Cynthia
Novac, Andrei

Publication Date
2007

DOI
10.1080/00405840701233008

Peer reviewed

RUNNING HEAD: Influences on aggression

Environmental influences, the developing brain,

and aggressive behavior

Cynthia Hudley, University of California – Santa Barbara

Andrei Novac, University of California – Irvine

Note. Correspondence concerning this article should be addressed to:

Cynthia Hudley, University of California, Santa Barbara, Gevirtz Graduate School of Education,

Santa Barbara, CA 93106, hudley@education.ucsb.edu

Abstract

In this article we review research on highly stressful environments that are known to support the development and display of aggressive behavior in childhood, adolescence, and beyond. We also examine some of the mechanisms through which such stressful environments may influence adolescents' aggressive behavior. Our review concentrates on adolescents' understanding of the social behavior of others and possible changes in the neurobiology of the brain. Finally, we briefly summarize the broad body of literature linking aggressive behavior in childhood and adolescence to long term adjustment. We conclude with recommendations for public policy and intervention strategies designed to mitigate the development and display of aggressive behavior.

Environmental influences, the developing brain,

and aggressive behavior

Developmental psychopathology and resilience research have taught us that early life experiences, while not the sole determinants of later life mental health and behavior disorders, may be important influences in children's development. Children living with substantial environmental stress early in life are at increased risk for aggressive and antisocial behavior in youth and adolescence, and promoting positive outcomes for youth requires that we attend to these environmental constraints and challenges. The adolescent engaged in gang activities or dating violence may well have been the toddler who was cared for in neglectful daycare, living in a distressed family, and witnessing frequent acts of community violence. For example, violent adolescent delinquents are twice as likely to have grown up with high rates of community and family violence as their non-delinquent peers (Loeber et al., 2005).

In this article we discuss the impact of highly stressful environments on the development and display of physically aggressive behavior in childhood and adolescence. We first describe possible effects of stressful environments on children's ability to think about and understand social information. Our discussion includes complementary evidence from psychobiology and trauma research that links environmental stress to potential changes in the brain. We turn then to the connection between the development of children's ability to process social information and aggression. We next briefly summarize evidence demonstrating potential long term social and emotional consequences of aggression. These findings suggest that the connection from troubled environment to troubling behavior operates in a mutually reinforcing way through both

biological and social development. We conclude with a discussion of intervention strategies and

public policy designed to promote positive youth development that addresses the needs of

communities, families, and schools rather than just individual children.

Dysfunctional Environments and Social Reasoning

Consistent with the trauma literature, we define a dysfunctional environment as one that presents

stress that exceeds the coping capacity of those present in that environment (Dempsey, 2002). In

modern society, dysfunctional environments can present stressors across a broad range of

experience, including pervasive discrimination, family poverty and disruption, parental neglect,

interpersonal violence (witnessing or being victimized by), housing instability and homelessness,

and media violence (Lewis, 1982). Children may be especially sensitive to the impact of

dysfunctional environments because their ability to self-regulate emotional and behavioral

responses and their specific coping skills may be relatively less well developed in comparison to

adults.. *{relative to what?}* Therefore, exposure to dysfunctional environments in childhood

when coping capacity is not well developed may have ann especially powerful impact on lasting

well beyond adolescence on emotional adjustment. in adolescence and on into adulthood.

Research suggests that environmental stress early in life sometimes contributes to a

particularly troubling perspective on social interactions (Downey, Khouri & Feldman, 1998).

More than two decades ago, researchers (Dodge, 1980; Nasby, Hayden & DePaulo, 1980)

noticed that aggressive youth sometimes overestimate harmful intentions in others, causing them

to respond with aggression toward their peers. This pattern of social reasoning, called a hostile

attributional bias, leads aggressive youth to feel justified in using physical aggression as a social strategy. Human development research now suggests that some environmental conditions may support such biased thinking,. These findings are complemented by neurobiological research on environmental stress and the developing brain. We will look closely at three environments that may impact the development of biased thinking.

Parental discipline. Physical discipline that is excessively harsh or abusive may sometimes create a hostile attributional bias, because these experiences may cause children to presume that everyone behaves toward them with deliberately hostile intent. As well, in the process of internalizing the experience of repeated abuse, trauma research suggests that the brain may undergo neurobiological change in a region called the hypothalmo-pituitary axis (HPA) that triggers a stress response (Ostrander et al., 2006). Elevated levels of stress hormones may make memories of traumatic experiences such as harsh discipline more permanent and influential in future cognitive processing of social information. Parental abuse, which provides an aversive environment, may also be related to the depletion of tryptophan (Richell, Deakin, & Anderson, 2005), an amino acid that calms impulsive and violent behaviors. Children who experience aversive environments may therefore become more impulsive in their inaccurate perceptions and aggressive retaliation due in part to reduced levels of tryptophan. In sum, excessively harsh parenting may not only socialize children to perceive relationships as threatening but also induce structural and hormonal changes in the brain that make these negative beliefs more lasting in memory and more likely to produce aggression in later childhood and adolescence.   These more available memories may serve as filters through future events are perceived and decisions made.

A familiar theory of parent-child relations, attachment theory, similarly proposes that early experiences with caregivers provide children with models of relationships (Crittenden & Ainsworth, 1989). Children who experience harsh physical discipline or abuse from parents may develop a working model of relationships as threatening and dangerous and respond accordingly, using aggression as a social tactic. However, attachment theorists have found that corporal punishment alone does not predict biased thinking or aggressive behavior when parents are perceived by the child as emotionally supportive and not threatening. Emotional support from parents, by reducing the child's perception of danger, may be an environmental protective factor that inhibits not only the release of stress hormones but also the development of a bias in social reasoning (Deater-Deckard, Dodge, & Sorbring, 2005).

Peer interactions. Some youth who experience repeated exposure to perceived threat, as is true with abusive discipline, may become hypervigilant for threat in social interactions, which leads them to see purposeful harm from peers where none exists (Downey et al., 1998). As well, youth may become less sensitive to the distress of peers and more approving of their own aggression as a social strategy (Downey et al., 1998). Exposure over time to perceived threat (e.g., abuse, peer aggression) also reduces the capacity to regulate neurotransmitters (serotonin, norepinephrine) (Cecchi, Khoshbouei, Javors, & Morilak, 2002) that send external information to the brain, according to complementary research in neurobiology. This combination of hypersensitivity to hostile social information and dysregulation of neurotransmitters may relate to several social deficits in adolescence. These youth may become inattentive to social information that contradicts their inaccurate perceptions of hostility. Those who become

insensitive to distress in others may be unable to respond appropriately to peer's behavior.

Therefore, in subsequent peer interactions, some youth who have experienced unusually harsh,

threatening environments may interpret ambiguous or even positive social behavior as though the

underlying intent is hostile (Hudley, 1994) and respond with inappropriate aggression and no

concern for possible consequences to the victim or to themselves.

     Community environment. Many residents of dysfunctional neighborhoods characterized

by crime, litter and graffiti, substandard housing, and easy availability of alcohol and other drugs

may become hypervigilant toward threatening social cues. Visible cues of neighborhood

disorder significantly predict a sense of distrust in residents, or the belief that others wish to do

them harm (Ross & Jang, 2000). Although research has been conducted largely with adults, the

relationship between distrust and neighborhood disorder is strongest in households with children

under age 18. In the few studies conducted with children, witnessing community violence has

been related to stronger beliefs in others' hostile intentions and more positive beliefs about the

appropriateness and usefulness of aggression as a social tactic (Schwartz & Proctor, 2000).

Studies of the brain that trace the development of neural networks of brain circuitry (Novac,

2003) also suggest that networks in the brain may be created in response to perceived threat or

violence in the environment. These networks, once solidified, can produce aggression before the

youth fully attends to all of the social cues available in the situation that might lead them to

behave without aggression. Thus, early threat that is experienced consistently may, in some

children, establish a neural circuit that supports retaliatory aggression. This pattern of social

reasoning helps explain a relationship between witnessing violence and engaging in aggressive

behavior. Taken together, these findings on the relationship between the environment and

children's social reasoning are a compelling argument that the accumulation of home, peer, and

neighborhood stress factors sometimes create a developmental pathway through which beliefs

about the appropriateness of aggression, biased perceptions of the behavior of others, and subtle

physical and hormonal changes in the brain all mutually reinforce one another and gain strength

in ways that support aggressive behavior in late childhood and adolescence. Although the

majority of children in stressful environments are able to cope effectively and become competent

adolescents and adults (Luthar, 2003), adult disorder is too often preceeded by childhood

adversity.

Social Reasoning and Aggressive Behavior

An even more broad set of evidence links patterns of social reasoning to the actual

display of aggression. Imagine a school playground, where students spend time waiting in line

for any number of activities. One child may be bumped hard from behind by a peer while

standing in line. Cognitive processes, including attributions about the causes of the push and a

search of the memory store for similar experiences, may produce a reaction ranging from no

response at all to throwing a punch at the peer's head. Another child may purposefully push

others aside to claim the place at the front of the line based similarly on cognitive processes such

as beliefs about the value and appropriateness of the behavior or the anticipation of hostile,

exclusionary behavior from peers.

Social-cognitive theory. Social cognitive theory (Crick & Dodge, 1994) has guided much

of the research on biased reasoning and aggression and has produced a unified model

(Huesmann, 1998) that highlights four decision points. A youth first perceives danger from the environment and next searches for and retrieves scripts from memory that are relevant to the situation. A script is a mental representation of what will happen in a given situation (e.g., eating lunch with peers, ordering a meal in a fast food restaurant). Scripts are guides for thinking and behavior, including judgments of appropriate action for that situation, how others are likely to act and feel, and the likely outcome of a given action. Scripts are memories created through observation and direct learning experiences, and these memories are subject to all of the environmental and neurobiological forces that we discussed in the previous sections. The youth next evaluates scripts stored in memory to decide what actions are acceptable, what actions lead to the most desired goal, and which actions are actually feasible. Finally, the youth evaluates the expected responses to any action.

Loud, verbal teasing at lunchtime is an example that illustrates how these decision points might be influenced by biased social reasoning. An aggressive youth may selectively attend only to social cues that suggest the encounter is threatening, based on stored memories of harsh and hostile social relations that may have been amplified by subtle hormonal changes in the brain. The youth may attribute hostile intent to the peer, expect to engage in a physical battle, decide that physical aggression is correct and beneficial in the situation at hand, and not be concerned about possible consequences to either the self (getting in trouble) or the peer (getting hurt). The peer teaser, on the other hand, based on past experience and personal assessment of verbal skills, may be expecting a lively and amusing verbal contest. Thus the peer's admittedly inappropriate overture is interpreted by the aggressive youth as a threat deserving of physical retaliation.

Evidence for the reasoning-behavior link. Many studies using hypothetical stories to assess children's judgments of their peers' behavior have found a relationship between biased social reasoning and aggression. Aggressive children (Hudley et. al., 1998) and adolescents (Graham, Hudley, & Williams, 1992), both boys and girls, more often attribute hostile intentions to peers when the peer's intent is ambiguous or behavior was accidental. Aggressive youth, much more so than nonaggressive youth, make faulty judgments even when the peer's intent is clearly depicted in a video clip (Waldman, 1996). Aggressive youth also more strongly prefer aggressive social strategies and retaliation, regardless of perceived intent (Graham & Hudley, 1994). Overall, youth who display high rates of aggressive behavior, both boys and girls, are more likely to rapidly and consistently perceive that others are directing hostile behavior towards them, evaluate aggressive behavior to be a preferred social tactic, have more aggressive strategies and beliefs in memory, and remain insensitive to the consequences of their aggression for others and for themselves. Unfortunately, aggressive behavior can be quite persistent from childhood through adulthood with lasting consequences for mental health.

The Stability of Aggressive Behavior and Mental Health

The clearest, most persistent long term finding has been that those who are highly aggressive in adolescence and adulthood were often highly aggressive as children in elementary school (Olweus, 1979). It is important to remember that not all highly aggressive children are violent as they grow older, but aggressive children are overrepresented in the population of violent adolescents and adults. Studies following children across several decades have found striking similarities. A notable early American study began in 1960 with a multiethnic sample of

boys and girls (Huesmann, Eron, Lefkowitz, & Walder, 1984). Children who were rated by their

peers as highly aggressive at age eight themselves reported high rates of aggression at age 18.

By age 30 both males and females reported high rates of physical aggression toward spouses and

children. Most troubling, the highly aggressive children at age eight were likely by age 30 to

themselves have children who were also highly aggressive.

A more recent project, the Carolina Longitudinal Study (Cairns & Cairns, 1994),

followed a multiethnic group of 695 elementary and middle school students for 14 years to

closely examine the primary risks faced by youths in the 1980's and 1990's and the lifelines or

avenues of possible support and protection against these risks. Researchers interviewed

participants annually, conducted behavioral observations, and identified a subgroup of the most

aggressive boys and girls for close monitoring. Participants, both girls and boys, with high

teacher ratings of physical aggression in elementary school continued to receive high teacher

ratings for aggression through their high school careers. The consistency in teacher ratings

across eight years is especially noteworthy because each student was rated by different teachers

each year. In addition, behavioral observations and interviews found that youth rated aggressive

by teachers were more likely to use both physically and emotionally hurtful strategies and were

less likely to make amends to maintain a relationship after an aggressive encounter.

Although high levels of physical aggression are less frequent in girls, when it does occur

girls can sometimes be more hostile and hurtful than many boys, as one interview from the

Carolina study illustrates. Donna, a tenth grader who was not socially disadvantaged, described

a conflict in which a peer, Linda, slapped her. Donna responded by beating Linda until she "had

a black eye" and she "was bleeding all over" (Cairns & Cairns, 1994 p. 46). Donna felt unable to

walk away after being slapped for fear of losing face in front of her friends.

Consequences of aggressive behavior. Children who engage in high rates of overt

aggression are sometimes, but not always, rejected by their peers. Those most likely to be

rejected are socially incompetent and inappropriate in their aggression, a typical profile of youth

with biased social reasoning. At the same time, children with a reputation for inappropriate

angry aggression elicit increased rejection and aggression from their nonaggressive peers.

Children who were both rejected and aggressive in elementary school experience substantially

greater externalizing (e.g., conduct disorder) and internalizing (e.g., anxiety, depression)

problems in adolescence compared to average children (Bierman & Wargo, 1995). Why does

the combination of early aggressiveness and peer rejection have a particular ability to bend

development toward social and emotional maladjustment? Rejection and social isolation

represent significant sources of stress for aggressive young people, in a manner similar to the

environmental stresses we discussed earlier. Aggressive-rejected youth are more often the

targets of peer aggression and are the least likely to be included in peer activities, largely because

of their reputations for aggressive and socially disruptive behavior. The stress of such a hostile

social climate is a substantial factor in producing the psychological distress that many

aggressive-rejected adolescents experience.

Aggressive-rejected status in childhood also leaves youth unable to connect with a

socially competent peer group. Aggressive-rejected children face restricted social options

because of their reputations. By adolescence, they may find themselves part of a deviant peer

group composed of other children with similar behaviors and reputations. Without opportunities for positive peer interactions, these adolescents fail to develop the social competence that would allow them to succeed in more normative peer groups. Instead, these groups develop into antisocial cliques that reinforce aggression, delinquency, and other behaviors that further distance them from opportunities to interact with better adjusted peers. In this cycle, aggression and peer rejection combine to accelerate the distance between successful and maladaptive development. Further, this movement of physically aggressive rejected children away from their better adjusted peers is most marked for girls, who suffer sharper declines in social acceptance than do boys (Xie, Cairnes, & Cairnes, 1999).

In summary, dysfunctional family, peer, and community environments can powerfully influence the development and display of biases in social reasoning. Harsh and emotionally unsupportive family environments; communities experiencing disorder and violence; and rejecting peer contexts can all alter brain structures, develop and reinforce biases in cognition, and support retaliatory aggression. For all too many children these cumulative experiences lead to relatively stable, heightened aggression and substantial adjustment problems in adolescence and beyond.

Implications for Public Policy and Intervention Efforts

We have argued here for an understanding of aggression that acknowledges the enormous impact of children's dysfunctional environments on individual outcomes. Public policy and intervention strategies consistent with our argument will be those that transcend a narrow focus on individual factors and see the promotion of mental health from an ecological perspective.

Work to eliminate dysfunctional environments. This broad comprehensive recommendation subsumes a number of initiatives to improve family and community functioning. All families must have the time, skills, and resources to nurture and protect their young, especially in the early stages of development, when children are particularly vulnerable to environmental influences. Necessary resources to support the family include access to safe, secure, and stable housing and health care; high quality child care; mental health screening and services; excellent education and job training; employment at livable wages; and efficient public transportation to access community services and cultural opportunities. This recommendation will require that society begin to invest seriously in the wellbeing of our most vulnerable families and communities, and professionals working with children, including educators, become more vocal advocates for comprehensive services in schools and community centers.

To eliminate dysfunctional environments, we must move toward a communal responsibility and away from the current individualistic thinking that supports privilege for some at the expense of others. Currently, some in our society enjoy unearned privilege that marginalizes and disadvantages whole groups of people on the basis of race, ethnicity, primary language, and social class. Our public discourse, in promoting a mythology of individual meritocracy, obscures the effects of privilege and consolidates unearned advantage for some rather than equalizing opportunity for all. As educators we can work with our students and their families and communities to promote the development of critical reasoning skills that challenge inequality, hatred, and violence of all kinds. Students should learn to formulate effective questions and pursue their own analyses relative to differences in resources and opportunities

across various regions and groups in society; such habits of mind can buffer youth against the

noxious influences of dysfunctional environments when coupled with the development of

effective skills to work for change in one's own life and community. Specific, age appropriate

methods for responsible violence prevention programming might include inviting motivational

speakers from various backgrounds who are members of the local community, engaging in local

organizing to seek solutions to crime and victimization, conducting community service projects

(clean-up, beautification) to enhance the local community, or mentoring programs in which

youth are mentored by trained, caring members of the community and in turn mentor peers and

younger students. In the process, all youth can develop leadership and organizational skills,

important tools that will support their future success. The environment that each of us wants for

our own children must be the environment that our intervention programs and public policy

construct for all of the children.

     Intervene appropriately. Consistent with our recommendation to eliminate dysfunctional

environments, efforts to support positive mental health must be developed and implemented in

collaboration with communities. The pervasive effects of environmental dysfunction must be

countered by specific prevention and intervention efforts that are ecologically sensitive,

culturally competent (Hudley & Taylor, 2006) and responsive to the unique needs of a

community. Little will be accomplished by programs that are experienced as oppression by

superior force; our evidence would predict that such programs would actually increase functional

changes in the brain, cognitive bias, and aggression. Rather, prevention and intervention efforts

should create environments that permit children and their families to thrive. We offer the

following specific recommendations:

- Develop positive competencies in youth and families, and move away from a punitive, deficit

  approach to intervention. Just as communities should provide positive resources for families,

  intervention programs for youth should focus on positive youth development.

- Intervene in multiple settings of the child's life. Schools should provide a high quality

  education targeted to intellectual, social, and emotional competence for all children,

  communities should provide secure spaces for children to thrive and appropriate services for

  their well-being, and families should be equipped to nurture and protect their young.

Fortunately, there has been a marked shift from deficit models of children's development

to an emphasis on positive youth development in a variety of intervention curricula for the

reduction of aggression and promotion of positive behavior. For example, the *BrainPower*

Program (Hudley et al., 1998; Hudley, Graham, & Taylor, in press), an intervention curriculum

that focuses on peer relations and aggressive behavior, has been successfully incorporated into a

4H Youth Development Program in southern California that targets adult participation in

children's lives while also working to improve children's social behavior, academic competence,

and leadership in community improvement. As well, the development of strengths, in both

communities and individuals, is the primary focus of the *Developmental Assets* framework

pioneered by the Search Institute (http://www.search-institute.org). Rather than a specific

curriculum, this organization has developed five strategies to help schools, communities, and

youth service providers identify and connect the people and resources necessary to support

positive community and youth development.

These recommendations and intervention strategies, taken together, reflect our vision of

the synergy between public policy and mental health services, a vision more global than most

current efforts. However, our call for broad based, societal reformulation of priorities and

practices in youth and family development represents the best hope for public policy to

successfully sustain and maximize the splendid potential of all children.

References

Bierman, K. & Wargo, J. (1995). Predicting the longitudinal course associated with aggressive-rejected, aggressive (nonrejected), and rejected (nonaggressive) status. *Development and Psychopathology,* 669-682.

Cairns, R. & Cairns, B. (1994). *Lifelines and risks: Pathways of youth in our time.* New York: Cambridge University Press.

Cecchi M., Khoshbouei H., Javors M., & Morilak D. (2002). Modulatory effects of norepinephrine in the lateral bed nucleus of the stria terminalis on behavioral and neuroendocrine responses to acute stress. *Neuroscience, 112,* 13-21.

Crick, N., & Dodge, K. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115,* 74-101.

Crittenden, P. & Ainsworth, M. (1989). Child maltreatment and attachment theory. In D. Cicchetti & V. Carlson, (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect.* (pp. 432-463). New York: Cambridge University Press.

Deater-Deckard, K., Dodge, K. & Sorbring, E. (2005). Cultural differences in the effects of physical punishment. In M. Rutter and M. Tienda (Eds.), *Ethnicity and Causal Mechanisms* (pp. 204-226). Cambridge: Cambridge University Press.

Dempsey, M. (2002). Negative coping as mediator in the relation between violence and outcomes: Inner-city African American youth . *American Journal of Orthopsychiatry, 72,* 102-109

Dodge, K. (1980). Social cognition and children's aggressive behavior. *Child Development, 51,*

162-170.

Downey, G., Khouri, H., & Feldman, S. (1998). Early interpersonal trauma and later

adjustment: The mediational role of rejection sensitivity. In D. Cicchetti & S. Toth

(Eds.), *Developmental Perspectives on Trauma: Theory, research, and intervention.*

Rochester Symposium on Developmental Psychology, Vol. 8 (pp. 85-114). Rochester,

NY: University of Rochester Press.

Graham, S. & Hudley, C. (1994). Attributions of aggressive and nonaggressive African-

American male early adolescents: A study of construct accessibility. *Developmental*

Psychology, 30, 365-373.

Graham, S., Hudley, C. & Williams, E. (1992). Attributional and emotional determinants of

aggression among African-American and Latino young adolescents. *Developmental*

Psychology, 28, 731-740.

Hudley, C. (1994). Perceptions of intentionality, feelings of anger, and reactive aggression. In

M. Furlong & D. Smith (Eds.), *Anger, hostility and aggression: Assessment, prevention,*

and intervention strategies for youth (pp. 39-56). Brandon, VT: Clinical Psychology

Publishing Co.

Hudley, C., Britsch, B., Wakefield, W., Smith, T., DeMorat, M., & Cho, S. (1998). An

attribution retraining program to reduce aggression in elementary school students.

Psychology in the Schools, 35, 271-282.

Hudley, C. Graham, S., & Taylor, A. (in press). Reducing aggressive behavior and increasing

motivation in school: The evolution of an intervention to strengthen school adjustment.

To appear in *Educational Psychologist*.

Hudley, C. & Taylor, A. (2006). Cultural competence and youth violence prevention

programming. In N. Guerra & E. Smith (Eds.), *Ethnicity, Culture, and Youth Violence*

Prevention Programming (pp. .249-269). Washington DC: APA.

Huesmann, L. R. (1998). The role of social information processing and cognitive schema in the

acquisition and maintenance of habitual aggressive behavior. In R. Geen & E.

Donnerstein (Eds.), *Human aggression: Theories, research, and implications for social*

policy (pp. 73-109). San Diego, CA: Academic Press.

Huesmann, L. R., Eron, L., Lefkowitz, M. & Walder, L. (1984). Stability of aggression over

time and generations. *Developmental Psychology, 20,* 1120-1134.

Lewis, M. (1982). Adolescent psychic structure and societal influences: A biopsychosocial

model. *Adolescent Psychiatry, 10*, 125-139.

Loeber, R., Pardini, D., Homish, D., Wei, E., Crawford, A., Farrington, D., Stouthamer-Loeber,

M., Creemers, J., Koehler, S., & Rosenfeld, R. (2005). The prediction of violence and

homicide in young men. *Journal of Consulting and Clinical Psychology, 73,* 1074-1088.

Luthar, S. (2003). *Resilience and vulnerability: Adaptation in the context of childhood*

adversities.

Nasby, W., Hayden, B. & DePaulo, B. (1980). Attributional bias among aggressive boys to

interpret unambiguous social stimuli as displays of hostility. J*ournal of Abnormal

Psychology, 89,* 459-468.

Novac, A. (2003). Trauma: Global and social considerations. *The Psychiatric Times, 20*, 33.

Olweus, D. (1979). Stability of aggressive reaction patterns in males: A review. *Psychological

Bulletin, 86*, 852-875.

Ostrander M., Ulrich-Lai Y., Choi D., Richtand N., & Herman J. (2006). Hypoactivity of the

hypothalamo-pituitary-adrenocortical axis during recovery from chronic variable stress.

Endocrinology, 147, 2008-2017

Richell, R., Deakin, J., & Anderson, I. (2005). Effect of acute tryptophan depletion on the

response to controllable and uncontrollable noise stress. *Biological Psychiatry, 57*, 295-

300.

Ross, C. & Jang, S. (2000). Neighborhood disorder, fear and mistrust: The buffering role of

social ties with neighbors. *American Journal of Community Psychology, 28*, 401-420.

Schwartz, D. & Proctor, L. (2000). Community violence exposure and children's social

adjustment in the school peer group: The mediating roles of emotion regulation and

social cognition. *Journal of Consulting & Clinical Psychology, 68*, 670-683.

Waldman, I. (1996). Aggressive boys' hostile perceptual and response biases: The role of

attention and impulsivity. *Child Development, 67*, 1015-1033.

Xie, Cairns, & Cairns (1999). Social networks and configurations in inner-city schools:

Aggression, popularity, and implications for students with EBD. *Journal of Emotional*

and Behavioral Disorders, 7, 147-155

Additional resources for Classroom Use

The Search Institute. http://www.search-institute.org/

This independent nonprofit organization offers extensive research and technical

assistance to communities focused on positive youth development. Their programs are

based on a framework of 40 developmental assets, or those conditions, positive

experiences, and personal qualities that young people need to grow up healthy, caring,

and responsible.

U.S. Department of Health and Human Services: Administration for Children and Families

http://www.acf.hhs.gov/programs/fysb/content/positiveyouth/publications.htm

This is the site of the federal Family and Youth Services Bureau (FYSB), an agency

whose mission is to promote positive outcomes for children, youth, and families by

supporting a wide range of comprehensive services and collaborations at the local, Tribal,

State, and national levels. This site provides information on grant funding and programs

that provide youth with positive alternatives and maximize their potential to take

advantage of available opportunities. The site also provides a list of publications focusing

on youth development.

4H Youth Development Program. http://anrcatalog.ucdavis.edu/InOrder/Shop/Shop.asp

This national organization is a partnership between the US Department of Agriculture,

state land grant universities, and local governments. The Youth Development Program

has an active exchange and training program, with materials available on the web for

youth development in citizenship, scholarship, leadership, and community involvement.

A wealth of curriculum materials and project guides for community involvement and

civic leadership are posted on this site.