

Anderson, C. A., & Groves, C. (2013). General aggression model. In M. S. Eastin (Ed.) *Encyclopedia of Media Violence* (pp. 182-187). Los Angeles: Sage.

rights treaty, among other stipulations CEDAW requires that states modify sociocultural practices to eliminate prejudices based on the supposed superiority, inferiority, or stereotyped roles of women and men. Although the United States signed CEDAW on July 17, 1980, it has not ratified or acceded to the convention and therefore is not legally bound to its provisions.

Melinda A. Lemke

See also Advertising, Influence on Society; African Americans in Media, Character Depictions and Social Representation of; Asians in Media, Character Depictions and Social Representation of; Latinos in Media, Character Depictions and Social Representation of; Media as a Reflection of Society; Sex in Media, Effects on Society; Social Learning From Media; Stereotyping in Violent Content

Further Readings

- Bastow, S. (1992). *Gender: Stereotypes and roles*. Pacific Grove, CA: Brooks/Cole.
- Beauvoir, S. (1949). *The second sex (Le deuxième sexe)*. C. Borde & S. Maloyany-Chevallier (Trans.). New York, NY: Knopf.
- Bradwell v. State of Illinois*, 83 U.S. 130 (1873).
- Butler, J. (1999). *Gender trouble: Feminism and the subversion of identity*. New York, NY: Routledge.
- Cook, R. J., & Cusack, S. (2010). *Gender stereotyping: Transnational legal perspectives*. Philadelphia: University of Pennsylvania Press.
- Dines, G., & Humez, J. M. (Eds.). (1995). *Gender, race, and class in media: A text-reader*. Thousand Oaks, CA: Sage.
- Faludi, S. (1991). *Backlash: The undeclared war against American women*. New York, NY: Anchor Books; Doubleday.
- Matthew Shepard and James Byrd, Jr. Hate Crimes Prevention Act, 18 U.S.C. § 249 (2009).
- Minor v. Happersett*, 88 U.S. 162 (1875).
- Ortner, S. B., & Whitehead, W. L. (Eds.). (1981). *Sexual meanings: The cultural construction of sexuality*. New York, NY: Cambridge University Press.
- Riley, D. (1988). *Am I that name: Feminism and the category of "women" in history*. New York, NY: Macmillan.
- Sloop, J. M. (2004). *Disciplining gender: Rhetorics of sex identity in contemporary U.S. culture*. Boston: University of Massachusetts Press.
- United Nations Convention on the Elimination of Discrimination Against Women (1979). UNGA A/RES/34/180.

Wirtig, M. (1992). *The straight mind and other essays*. Boston: Beacon Press.

GENERAL AGGRESSION MODEL

General aggression model (GAM; Anderson & Bushman 2002) is a comprehensive and integrative theoretical framework within which multiple social, cognitive, and developmental theories are incorporated to aid comprehension of and research on human aggressive behavior. Some of the more prominent (but not the only) theories that GAM incorporates include cognitive neoassociation theory, social learning theory, and behavioral script theory. Each theory offers crucial insight into understanding the reasons why people behave aggressively. This entry outlines the processes of GAM, especially with regard to media effects, and discusses the extensions of GAM to other research topics.

Processes

General aggression model can be broadly broken down into two sets of related processes. *Proximate processes* are those that are immediately related to aggressive behavior. *Distal processes* are those that influence short-term processes through long-term aggressive behavioral tendencies.

Proximal Processes

Proximal processes can best be understood by examining a single-cycle episode of GAM (see lower portion of Figure 1). A single episode begins with two forms of input. The first of these forms is the situation, factors within the present event that can influence social behavior. The second of these forms of input involves intrapersonal factors. These are individual differences—person factors—that may directly influence behavior, such as mood or trait aggressiveness, or may moderate the effects of situational factors.

In the next stage of GAM's single-cycle episode, proximate processes influence internal states. The primary internal states of interest concern affect, cognitions, and physiological arousal, each of which interacts with the others (e.g., heart rate increases following frustration). General aggression model does not state which of these internal states are affected by which input variables; that is the task of more specific research. Instead, GAM specifies

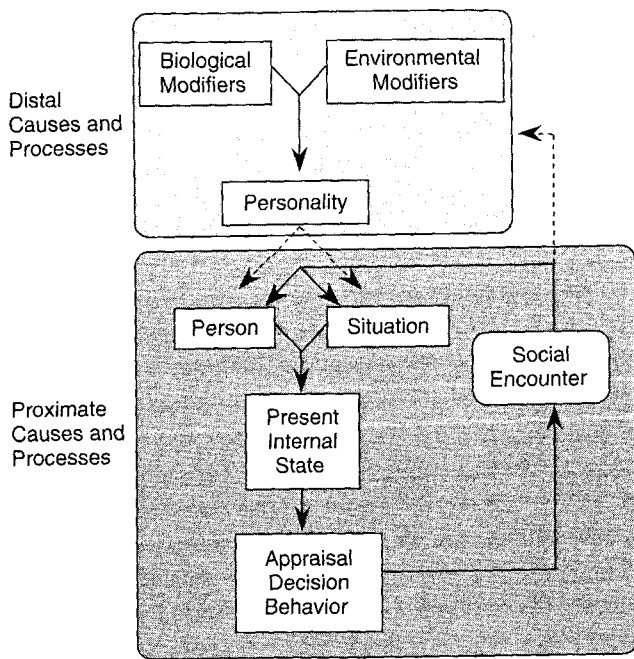


Figure 1 The General Aggression Model: Single-Cycle and Distal Processes

Source: Anderson, C. A. & Carnagey, N. L. (2004) Violent evil and the general aggression model. Chapter in A. Miller (Ed.) *The Social Psychology of Good and Evil* (p. 183). New York, NY: Guilford Publications. Copyright Guilford Press. Reprinted with permission of The Guilford Press.

that factors that ultimately influence the likelihood of aggressive behavior do so through at least one of these three types of internal states. For example, research has demonstrated that the short-term effects of media violence on aggressive behavior are mediated primarily by aggressive cognitions. However, aggressive affect and physiological arousal also play a part in some cases.

The single-cycle episode of GAM continues with decision and appraisal processes (Figure 2). It posits that the contents of an individual's internal state both influence and are influenced by these decision and appraisal processes. Research regarding individuals' attributions (e.g., Anderson, Krull, & Weiner, 1996) has shown that after a significant event occurs, an individual will immediately attempt to determine why it occurred. This initial appraisal can occur without conscious awareness. Furthermore, the appraisal may include behavioral response options. For example, if someone believes he or she has been provoked, a retaliatory response may occur as an immediate reaction. If an individual does not have the time, motivation, or cognitive resources to further evaluate his or her initial attribution, then an impulsive, reactionary

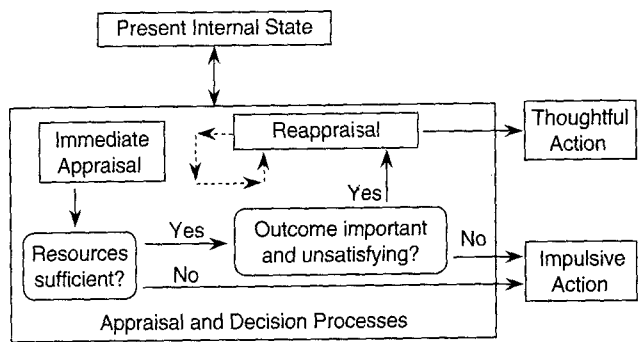


Figure 2 Appraisal and Decision Processes Within the General Aggression Model: Expanded View

Source: Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, 53, 27–51.

decision will occur. However, if time, motivation, and cognitive resources are available, the individual must decide whether his or her initial attribution is both important and unsatisfying. If this is not the case, and the initial attribution is either unimportant or satisfying, then an impulsive behavior will likely occur. If this is the case, then one or several reappraisals of the event will occur. Reappraisals will continue to be made until the individual is satisfied with the attribution or until a response is required, in which case a thoughtful action will likely occur. Thoughtful or impulsive actions can be either aggressive or nonaggressive, and reappraisal of events does not necessarily guarantee that an initially hostile attribution will be altered by reappraisal.

After an impulsive or thoughtful appraisal is made, the ensuing behavior then feeds into the ongoing social encounter. The social encounter then influences the situational input for the next behavioral cycle. This process is one basis for GAM's proposed violence escalation cycle (Figure 3). When a hostile attribution is made, it can be considered a triggering event for the violence escalation processes. These hostile attributions may occur as a result of any range of events, from mild provocation (e.g., being bumped in the hallway) to severe provocation (e.g., being insulted). After being provoked, an individual is likely to retaliate in a more severe manner than warranted by the initial provocation. The individual who made the initial perceived or actual provocation is then likely to respond with an even more severe retaliation, which leads to continued repetitions of the cycle. General aggression model posits that media violence (as well as other risk factors) influences the knowledge structures that individuals retrieve when making attributions to a significant event. They

therefore increase the likelihood that a triggering event is perceived as hostile and guide the perceived appropriate behavioral response. Research has demonstrated that a minor triggering event is more likely to initiate a violence escalation cycle for individuals high in trait aggressiveness than for nonaggressive individuals.

Distal Processes

General aggression model also incorporates several developmental processes in its understanding of aggressive behavior (see upper portion of Figure 1). These distal processes focus on how continued exposure to aggression-related stimuli (such as media violence) develops long-term aggressive personalities. There are two primary types of factors that influence the development of an aggressive personality. The first type involves biological modifiers such as arousal, serotonin levels, hormonal imbalances, and the possession of disorders such as attention deficit hyperactivity disorder (ADHD). The second type involves environmental influences on what people learn and believe. These may include harsh

or inconsistent parenting, cultural and community influences, peer influences, exposure to violence, and poverty. General aggression model proposes that these two types of modifiers interact with each other to influence the development of aggressive (or nonaggressive) personalities.

At its most fundamental level, GAM is considered a social cognitive model of aggression. As individuals continually interact with aggression-related stimuli, they learn, rehearse, and reinforce aggression-related knowledge structures, and each interaction serves as a learning trial. Furthermore, observational learning plays a key role in the development of aggressive tendencies. Individuals do not simply imitate aggressive behavior but also use the behavior of others as a model through which to draw inferences to help determine when aggressive responses are appropriate. As individuals find themselves in situations that repeatedly evoke aggressive thoughts, feelings, and behaviors, they continually develop aggression-related knowledge structures. These knowledge structures are then “tapped into” when individuals interpret events and make decisions, ultimately leading to an increased likelihood of aggressive behavior. If the emitted aggressive behavior tends to be successful—in other words, if it is reinforced by the environment—then such thought, feeling, and action patterns (scripts) become more likely avenues of response in future situations. Of course, if the environment (e.g., parents, peers) does not reinforce aggressive behaviors, and especially if it instead rewards nonaggressive solutions to conflict, then a nonaggressive behavior style becomes more likely.

One of these proposed underlying processes involves *desensitization*, defined as a reduction in negative emotion-related physiological reactions to viewing, thinking about, and planning real-life violence (Carnagey, Anderson, & Bushman, 2007). *Physiological reactivity* is defined as the change in various forms of negative emotional arousal such as heart rate, perspiration, and skin conductance. Multiple studies have established a relationship between exposure to violent media and subsequent desensitization. As individuals become desensitized to violence, they experience a lessened negative emotional and physiological reaction to thoughts about violence, essentially reducing normal emotional inhibitions to behaving aggressively. In short, violence is experienced as less aversive and seen as more acceptable.

Nicholas L. Carnagey and colleagues examined the effects of violent media on desensitization

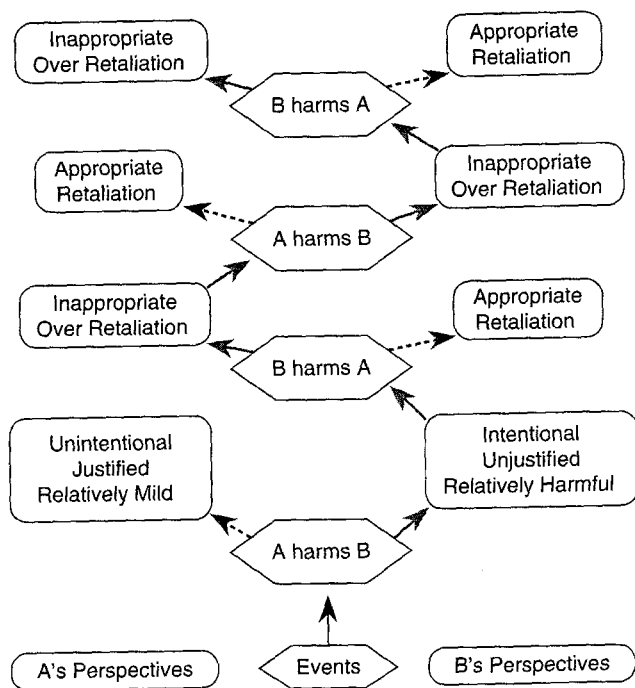


Figure 3 The Violence Escalation Cycle

Source: Anderson, C. A. & Carnagey, N. L. (2004) Violent evil and the general aggression model. Chapter in A. Miller (Ed.). *The Social Psychology of Good and Evil* (p. 181). New York, NY: Guilford Publications. Copyright Guilford Press. Reprinted with permission of The Guilford Press.

by randomly assigning participants to play a violent or nonviolent game and measuring physiological arousal both before and after game play. Subsequently, participants viewed clips of real-life violence and had their physiological arousal measured a third time. Participants who had played the violent game showed significantly reduced physiological reactions to viewing the clips of real-life violence compared with those who had just played a nonviolent game. Similarly, Brad J. Bushman and Craig A. Anderson (2009) examined the effects of media violence on helping behavior. Specifically, their studies involved participants who played either a violent or a nonviolent game (Study 1), or who watched either a violent or nonviolent movie (Study 2), and were then given an opportunity to help a person in need. In both studies, media violence exposure decreased helping behavior.

A second process through which exposure to media violence leads to long-term developments of aggressive behavioral tendencies comes from the development of aggressive attitudes and beliefs. General aggression model points out that positive beliefs and attitudes toward violence should lead to increased aggressive behavior. For example, when aggressive responses are considered more socially appropriate, individuals may be more likely to engage in aggressive behavior. General aggression model argues that as aggressive behavior is positively reinforced, attitudes and beliefs toward aggressive responses to provoking situations are increasingly perceived as appropriate. This notion is supported by a variety of studies in which playing violent games was associated with more positive attitudes toward violence. When positive attitudes toward violence were taken into account, the relationship between violent video game play and aggression was nearly extinguished. Longitudinal research has demonstrated that playing violent video games was associated with increased likelihood of believing aggressive responses to be appropriate 30 months following initial exposure. Furthermore, these beliefs were associated with increased aggressive behavior. This suggests that one of the routes through which violent media exposure leads to aggressive behavior is by supporting and reinforcing positive attitudes and beliefs toward violence.

Another way in which individuals develop long-term aggressive behavioral tendencies is through the development of aggressive behavioral scripts. A behavioral script is a mental representation of what events should occur given any social situation, such

as what to do in a fast-food restaurant. Such scripts guide our interpretation of events that we witness, but they also guide our behavior. Although many behavioral scripts are universal within a given culture, others are more regional or even idiosyncratic.

With regard to aggressive behavior, behavioral scripts inform individuals how and when aggressive responses are appropriate in a given social scenario. Road rage, intimate partner abuse, and child abuse all appear to have scripted aggressive behaviors at their core. Our experiences and individual characteristics dictate, to some extent, what behavioral scripts are encoded. As individuals are repeatedly exposed to violence, whether in the form of violent media or real-life violence, they develop and reinforce aggressive behavioral scripts. As these scripts become increasingly available, individuals are more likely to retrieve and use them when deciding when aggressive responses are most appropriate. Contrastingly, for those who are not frequently exposed to violence, fewer scripts are developed, and for scripts that do exist, automatic retrieval is less likely. This tendency is reflected in research demonstrating that long-term exposure to violent video games is positively associated with an increased likelihood of perceiving ambiguous behavior as aggressive. Furthermore, short-term violent video game exposure has been shown to increase the accessibility of aggressive behavioral scripts.

The formation of individuals' long-term aggressive tendencies as a result of violent media exposure is also related to the development of aggressive perceptual schema. Perceptual schemas are knowledge structures that individuals draw upon to identify objects and scenarios. For example, individuals are able to identify a vehicle by drawing upon what is known about the qualities of vehicles (e.g., the object moves, has wheels or some type of engine). However, individuals also use perceptual schema to identify complex social scenarios such as provocation by collecting and interpreting the variety of "cues" associated with provocation (e.g., an angry facial expression). These knowledge structures contain nodes that are linked together in semantic memory. Aggressive concepts such as "murder" are repeatedly paired with similar concepts such as "gun" or "stab." Therefore, when one of these concepts, or nodes, is activated, other associated nodes are also activated. As events continually prime one or more nodes within an associative network (such as aggression-related concepts), they reinforce the network, making other nodes within that network

more likely to become activated. For instance, some research has demonstrated that viewing aggression-related pictures (e.g., guns) led to faster responses to aggression-related words (e.g., *injure*) than to nonaggressive words. Similarly, research has been conducted testing this hypothesis using word-fragment completion tasks. In these tasks, participants are asked to fill in the blanks of words that can be completed to form either aggressive or non-aggressive words. For example, the word fragment *explo_e* can be completed with the word *explode* or *explore*. Other research has shown that participants were more likely to complete word fragments with aggressive words after playing a violent game than after playing a nonviolent game.

Longitudinal research has further elucidated the relationship between violent media exposure and aggressive perceptual schema by studying a group of elementary school children at two points during the school year over a six-month period. They found that for children who were repeatedly exposed to violent video game play, increases in hostile attribution biases were more likely. General aggression model posits that as these children continually reinforced aggression-related nodes within their semantic network, these aggression-related concepts became more heavily used, relied upon, and available. When encountering an ambiguous situation, they were therefore more likely to draw upon aggression-related concepts, ultimately leading to a tendency to interpret the ambiguous behavior as aggressive.

Other research has also examined the relationship between violent media exposure and aggressive perceptual schema using a different but related method. This research demonstrated that college students who are exposed to high amounts of violent media are more likely to display highly accessible aggressive self-images. Taken as a whole, these studies appear to demonstrate that exposure to violent media influences the development of long-term aggression-related knowledge structures, and as individuals are exposed to violent media, these knowledge structures are activated and reinforced in the moment. It is important to note, however, that this collection of discussed knowledge structures is not an exhaustive list but includes some of the most important and well-researched to date.

Theoretical Extensions

General aggression model has been applied heavily to research regarding the effects of media on

aggression and is one of the most cited contemporary theoretical models in media effects research on aggression. However, its applications are not merely limited to media effects research, nor was it ever intended as merely a model for media effects. Instead, as a general model of aggression, GAM can be and is applied to numerous other aggression research topics. These include (but are certainly not limited to) provocation, intimate partner violence, intergroup violence, global climate change effects on violence, and suicide. Another prominent example involves the “weapons effect.” It has been long understood that the presence of a weapon leads to an increase in aggressive behavior. As was mentioned previously, GAM predicts that this occurs as a result of the knowledge structures associated with weapons. Because weapons are often closely linked in memory to aggression-related concepts (e.g., murder, kill), activation of a single concept (e.g., the presence of a weapon) leads to a spreading activation of similar concepts. However, GAM points out that this spreading activation is dependent on any given individual’s personal history and the nature of the knowledge structures that are activated.

Research by Bruce D. Bartholow and colleagues (2005) directly tested this by recruiting participants who reported their leisure activities either to include hunting or to not include hunting. In their first experiment, they determined that hunters reported more positive and less aggressive associations with guns used for hunting than did nonhunters. In their second and third experiments, exposure to images of hunting guns was associated with higher levels of aggressive thoughts and behavior for nonhunters as compared to hunters. This effect, according to GAM, occurs as a result of the associations that hunters have regarding guns used for hunting. Because these individuals view guns used for hunting as a tool for leisure and sport rather than aggression and harm toward other people, fewer aggression-related concepts are simultaneously activated—leading to lessened aggressive responses compared with those whose knowledge structures strongly connect guns used for hunting with aggression and harm toward others.

General aggression model has also been modified to apply to nonaggressive learning tendencies in what is called the general learning model (GLM). Of course, not all media depict violent content. For example, some media, including video games, portray prosocial content. Theoretically, many of the

same processes through which individuals develop aggressive tendencies will also apply to (in this case) prosocial tendencies. Much like GAM, exposure to prosocial content in media leads to both long-term and immediate prosocial tendencies. Other research has demonstrated that individuals who played more prosocial games were more likely to behave prosocially in the future. Furthermore, playing a prosocial game increased the likelihood of a student participant helping another student in need.

Craig A. Anderson and Christopher Groves

See also Cognition: Schemas and Scripts; Cognitive Psychology of Violence; Cognitive Script Theory and the Dynamics of Cognitive Scripting; Effects From Violent Media, Short- and Long-Term; Interactive Media, Aggressive Outcomes of; Longitudinal Research Findings on the Effects of Violent Content; Social Cognitive Theory; Social Learning From Media; Video Game Player and Opponent Effects

Further Readings

- Abelson, R. P. (1981). Psychological status of the script concept. *American Psychologist*, 36, 15–29.
- Anderson, C. A., Benjamin, A. J., & Bartholow, B. D. (1998). Does the gun pull the trigger? Automatic priming effects of weapon pictures and weapon names. *Psychological Science*, 9, 308–314.
- Anderson, C. A., Buckley, K. E., & Carnagey, N. L. (2008). Creating your own hostile environment: A laboratory examination of trait aggression and the violence escalation cycle. *Personality and Social Psychology Bulletin*, 34, 462–473.
- Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, 53, 27–51.
- Anderson, C. A., & Carnagey, N. L. (2004). Violent evil and the general aggression model. In A. Miller (Ed.), *The social psychology of good and evil* (pp. 168–192). New York, NY: Guilford.
- Anderson, C. A., Carnagey, N. L., Flanagan, M., Benjamin, A. J., Eubanks, J., & Valentine, J. C. (2004). Violent video games: Specific effects of violent content on aggressive thoughts and behavior. *Advances in Experimental Social Psychology*, 36, 199–249.
- Anderson, C. A., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, 78, 772–790.
- Anderson, C. A., Gentile, D. A., & Buckley, K. E. (2007). *Violent video game effects on children and adolescents: theory, research, and public policy*. New York, NY: Oxford University Press.

- Anderson, C. A., Krull, D. S., & Weiner, B. (1996). Explanations: Processes and consequences. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles*. New York, NY: Guilford.
- Bandura, A. (1986). *Social foundations of thought and action: A social-cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bartholow, B. D., Anderson, C. A., Carnagey, N. L., & Benjamin, A. J. (2005). Interactive effects of life experience and situational cues on aggression: The weapons priming effect in hunters and nonhunters. *Journal of Experimental Social Psychology*, 41, 48–60.
- Berkowitz, L. (1984). Some effects on thoughts on anti- and prosocial influences of media events: A cognitive neo-association analysis. *Psychological Bulletin*, 95, 410–427.
- Bushman, B. J., & Anderson, C. A. (2009). Comfortably numb: Desensitizing effects of violent media on helping others. *Psychological Science*, 20, 273–277.
- Carnagey, N. L., Anderson, C. A., & Bushman, B. J. (2007). The effect of video game violence on physiological desensitization to real-life violence. *Journal of Experimental Social Psychology*, 43, 489–496.
- DeWall, C. N., Anderson, C. A., & Bushman, B. J. (2011). The general aggression model: Theoretical extensions to violence. *Psychology of Violence*, 1, 245–258.
- Gentile, D. A., Anderson, C. A., Yukawa, S., Ihori, N., Saleem, M., Ming, L. K., Shibuya, A., Liau, A. K., Khoo, A., & Sakamoto, A. (2009). The effects of prosocial video games on prosocial behaviors: International evidence from correlational, experimental, and longitudinal studies. *Personality and Social Psychology Bulletin*, 35, 752–763.
- Moller, I., & Krahe, B. (2009). Exposure to violent video games and aggression in German adolescents: A longitudinal analysis. *Aggressive Behavior*, 35, 75–89.
- Uhlmann, E., & Swanson, J. (2004). Exposure to violent video games increases implicit aggressiveness. *Journal of Adolescence*, 27, 41–52.

GENETICS OF AGGRESSIVE BEHAVIOR

In many respects, aggression serves as the raw material that drives conduct problems across the life course. Whether assessing difficult temperament in infancy and toddlerhood, self-regulation deficits in childhood, delinquency in adolescence, or criminal violence in adulthood, aggression—defined as a behavior directed toward another person with the intention of doing harm (Anderson & Bushman, 2002)—is the fundamental, elemental construct