

Aggression

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Glossary

Aggression Any behavior that is intended to harm another person who does not want to be harmed.

Antisocial behavior Any behavior that either damages interpersonal relationships or is culturally undesirable.

Aggression had existed for a long time before people became interested in studying it. Dinosaurs, birds, insects, Neanderthals, indigenous tribes, and almost our entire evolutionary lineage adopted aggression as a useful survival tool. Killing, violence, and intimidation proved quite useful in obtaining food, sex, territory, and other resources, among all the species. When humans evolved as hunters and gatherers and settled into smaller living communities, aggression became a particularly constructive asset. Males could use aggression to win mates, provide protection, and hunt other animals. Females could use aggression to defend offspring and guard domestic capital. In these ways, our most aggressive ancestors were also the most successful in passing on their genes to future generations, thus providing us with a highly effective blueprint for survival.

However, aggression became less and less adaptive as we continued to evolve. Small tribes transformed into complex societies. Individual effort was unable to compete with group success. Over millions of years, humans became (and continue to be) highly *social* creatures as they learned to bank on cooperation and interdependence for survival. In turn, aggression toward others seemed more likely to hinder group progress than promote it. Men and women were forced to resort to more compromising behaviors in order to live longer, healthier lives, and ultimately increase their chances of making a splash in the gene pool.

It is both peculiar and astounding, then, that aggression has come to characterize so much of our subsequent history. The rapid rise of interpersonal violence within early societies, the widespread occurrence of murder throughout the Middle Ages, and the countless casualties from any one of the hundreds of wars, all demonstrate our consistent proclivity toward aggression and violence. In fact, we experienced only 26 days of world peace (defined as the absence of international wars) in all of the 40 years following the Second World War. Although numerous sources suggest that overall aggression has been on a steady generational decline, its occurrence and effects are considerably prevalent even today.

Why has something seemingly so maladaptive and detrimental to our survival not been left behind by evolution? How have we developed into such a socially dependent species while failing to learn from our most destructive social mistakes? What can we do to change our behavior before it becomes too late? Where can we find the answers?

Such is the pursuit of the psychological study of human aggression. Though the act itself is certainly not a recent phenomenon, modern scientific research on aggression has

revealed a great deal of insight into its many characteristics, causes, and means of reduction.

What Is Aggression?

In social psychology, aggression is typically defined as any behavior that is intended to harm another person who does not want to be harmed. It is distinct from violence, which is usually defined as extreme physical harm with injury or death as its goal. Violence is a specific form of aggression. All violence is aggressive; not all aggression is violent.

Importantly, this definition of aggression highlights three critical features. First, aggression must be an actual behavior. It is not an emotion, thought, or memory, but a real-life observable behavior, such as a punch or a verbal curse. Second, aggression must be purposeful and intentional. The person who uses aggression very much intends to harm the other person; it is not an accident or by-product. Third, aggression always involves undesired harm to the other party; the victim must not want to be harmed. Thus, autonomous behaviors such as masochism and suicide do not qualify as aggression.

Aggression takes a variety of forms and can vary in function. While its general definition remains constant, it is important to distinguish between these individual components.

Forms of Aggression

Aggression is often expressed in distinct forms, typically falling within each of three sets of criteria. First, aggression can be physical, verbal, or relational. Physical aggression refers to using physical behaviors to harm others, and includes behaviors such as hitting and shooting. It is the form of aggression most clearly linked with violence. Verbal aggression refers to using words to harm others, and includes behaviors such as screaming and cursing. Relational aggression, also known as social aggression, refers to harming a person's relationships, feelings of acceptance, or social inclusion, and includes behaviors such as talking about others behind their backs or intentionally excluding a person from one's own group of friends. The social pain involved in relational aggression can be more lasting than physical pain.

Second, aggression can be direct, indirect, or displaced. Direct aggression refers to an aggressive act against a person who is physically present while it occurs. This would include aggressive behaviors such as kicking another person or

yelling at a person to his or her face. In contrast, indirect aggression is expressed when the victim is absent. This would include aggressive behaviors such as destroying property or spreading rumors.

Sometimes people displace their aggression against an innocent substitute target. In the classic Freudian example of displaced aggression, a man is angered by his boss at work and kicks his dog when he gets home from work, rather than retaliating directly against the boss. In addition, the victim does not always have to be completely innocent. In triggered displaced aggression, the target commits some kind of minor offense, which in turn causes a person to aggress. For example, the man who was berated by his boss might come home to find that the dog has spilled some of its food on the floor. Displaced aggression is used primarily when the primary target is not available (e.g., when the man's boss leaves work early) or when retaliation against the target may result in undesirable consequences (e.g., the boss might respond by firing the man).

Third, aggression can be active or passive. Active aggression is expressed when the aggressor resorts to explicitly harmful behavior toward the victim, such as slapping or yelling. On the contrary, passive aggression refers to failure on the aggressor's part to act in a helpful way, or withholding some helpful behavior, such as 'forgetting' to inform someone of important information or deliberately showing up late for an important group meeting.

Direct and active forms of aggression can be quite risky, leading to injury or even death. Thus, most people prefer to use indirect and passive forms of aggression instead.

Functions of Aggression

Aggressive acts may also differ in their function. Consider two examples. In the first, a husband finds his wife and her lover together in bed. He takes his rifle from the closet, and shoots and kills both individuals. In the second, a 'hitman' uses a rifle to kill another person for money. The form of aggression is the same in both examples (i.e., physical aggression caused by shooting and killing victims with a rifle). However, the motives appear quite different. In the first example, the husband appears to be motivated by anger. He is enraged when he finds his wife making love to another man, so he shoots them both. In the second example, the 'hitman' appears to be motivated by money. The 'hitman' probably does not hate his victim. He might not even know his victim, but he kills the person anyway for the money. To capture different functions or motives for aggression, psychologists make a distinction between reactive aggression (also called hostile, affective, angry, impulsive, or retaliatory aggression) and proactive aggression (also called instrumental aggression). Reactive aggression is 'hot,' impulsive, angry behavior that is motivated by a desire to harm someone. Proactive aggression is 'cold,' premeditated, calculated behavior that is motivated by some other goal (obtaining money, restoring one's image, restoring justice).

Although the function of aggressive behavior is important to consider, recent research suggests that it is almost impossible to distinguish between reactive and proactive aggression. Real-life scenarios are typically not as distinct and unambiguous as the husband and hitman examples.

Measurement of Aggression

Aggression is scientifically measured inside and outside the laboratory. Field research conducted outside the lab looks at statistics to establish a correlation between aggression and predicting variables. Instances of violence and aggression such as school shootings or violent crimes are analyzed after they occur, and factors such as gender, poverty, and age are examined to determine what conditions might have led the aggressors to act in such ways.

Aggression is also studied behaviorally in the lab. Given the practical and ethical restraints of using human participants, researchers have developed a number of creative methods to address the issue. They cannot give the participants in their studies guns, knives, or even boxing gloves. Today, there are three primary ways in which laboratory aggression is measured. First, the 'hot sauce paradigm' measures aggression by requiring participants to indicate the amount of hot sauce an ostensible partner, who very much dislikes spicy food, should consume. Second, in the 'bungled procedure' paradigm, participants are asked to shoot a human target with a type of pellet gun, but before they are able to do so, the equipment experiences a 'malfunction' and they never actually use the gun. Aggression is measured by the type of gun and number of bullets chosen by the participant.

The third method is perhaps the most common. Participants are asked to participate in a competitive reaction time task, in which they press a button as quickly as possible in a series of trials with an ostensible partner. The 'loser' of each round is shocked by the opponent, who sets the degree of stimulation. The newer model uses blasts of noise through headphones, adapted from the original paradigm that used physical shocks. Noise levels are randomized throughout the task, and aggression is measured by analyzing the responses of the target participant when given the opportunity to 'blast' his or her partner. In other variations of the paradigm, participants earn money for participating in the study, and they can subtract money from their ostensible partner.

Why Do We Use Aggression?

It is indisputable that people use aggression in a wide variety of ways. In turn, many theories have been developed in an attempt to explain why we so often aggress against others. The main theories are summarized in the following sections.

Instinct Theories

Instinctive-aggression theories state that aggressive behavior is simply an innate survival tendency, inherent in many species. According to these theories, first advanced by Charles Darwin, violence and aggression are unmotivated, automatic forces that occur naturally and have been passed down as an adaptive evolutionary trait; we are wired to be aggressive in order to increase our chances of survival. We do not learn to be aggressive or become aggressive after certain life experiences. Rather, as political philosopher Thomas Hobbes stated, "we are naturally violent creatures."

Sigmund Freud believed that all humans are born with both a 'life instinct,' which creates, sustains, and promotes life, and a 'death instinct,' which destroys life. According to this

psychoanalytic view, we stop short of destroying ourselves because the life instinct overpowers the death instinct, and diverts our harmful urges outward toward others. Therefore, the basis of aggression lies within the internal battle to preserve our own life.

Building on Freud's ideas, ethologist Konrad Lorenz proposed that aggressive urges can build up, in much the same way that hydraulic pressure causes fluids to build up within a restricted space, and that these urges must be released in some way. Subsequently, we engage in aggressive behavior to release our natural pent-up levels of aggressive instincts.

Research refuting instinctive theories reveals that aggression does not seem to be completely unmotivated. There is even evidence to suggest that humans actually derive pleasure from harming others who have provoked them.

Frustration–Aggression Theory

Frustration–aggression theory, proposed in 1939 by a group of researchers from Yale University, was summarized in two bold statements: (1) “the occurrence of aggressive behavior always presupposes the existence of frustration” and (2) “the existence of frustration always leads to some form of aggression.” Whereas instinct theories focused on internal factors that increase aggression, the frustration–aggression theory focused on external factors. However, it readily became apparent that not all aggression results from frustration, and not all frustrations lead to aggression. Besides an inclination to aggress, frustrations actually stimulate a number of different inclinations such as an inclination to escape or to find a way around the obstacle to the goal. The revised theory proposed that the inclination that eventually dominates is the one that is most successful in reducing frustration. In other words, people learn through experience what actions are effective in reducing aggression. This idea opened the door for learning theory explanations of aggression (see next section).

The frustration–aggression theory provides a good explanation of why poverty is a consistent predictor of aggression and violence. It is frustrating not to be able to obtain basic needs such as food and shelter.

Fifty years later, Leonard Berkowitz revised the frustration–aggression theory by proposing that all unpleasant events – not only frustration – deserve to be recognized as important causes of aggression. The idea is that unpleasant events (including frustrations) automatically produce primitive fight or flight reactions. When we experience an unpleasant event, we want to stop it or leave. The occurrence of aggression depends on how the unpleasant event is interpreted and on the presence of aggressive cues. For example, if a person has just seen a violent movie and is pushed from behind while exiting the theater, he or she may very well act in an aggressive manner.

Learning Theories

The frustration–aggression theory was seminal to the development and popularity of other situational explanations of aggression. These explanations went against the assumption that people are aggressive because they are born that way.

Learning theories of aggression are based on both operant and classical conditioning. Operant conditioning, the defining

feature of behaviorism, proposes that behavior is motivated by pursuit of pleasure and avoidance of pain. Classical conditioning, as famously demonstrated by Ivan Pavlov's experiments involving dogs, proposes that behaviors are determined by the learned pairing of two or more stimuli.

Other learning theories of aggression go beyond simple conditioning. In his social learning theory (also called observational learning theory), Albert Bandura theorized that observation and imitation are at the root of aggressive behavior. In Bandura's studies, children who observed an actor hitting a 'bobo' doll (a large, inflatable toy clown) imitated the actor's aggressive behavior and also hit the 'bobo' doll. Bandura proposed that aggression is not simply a mindless mimicry of another's behavior, but also involves cognitive inferences, generalizations, and interpretations. For example, if a child sees one parent hit the other across the face following an altercation, the child may not only imitate the action, but may also conclude that it is acceptable to hit someone who provokes you. Recent research has revealed that this process of learning-from-imitation even has a neurological basis. 'Mirror neurons' identical to those that are fired when one is performing a behavior are fired also in response to observing someone else perform the behavior.

Social-Cognitive Theories

As learning theories increased in complexity, they gave rise to theories that focused on higher cognition and information processing. These social-cognitive theories focus on how thoughts influence behaviors. One social-cognitive theory, developed by Rowell Huesmann and colleagues, focuses on scripts. The term script is borrowed from theater. In a play or movie, a script tells the actor what to say and do. The fundamental element in a script is the vignette, defined as 'an encoding of an event of short duration,' consisting of both a perceptual image and a 'conceptual representation' of the event. A simple vignette might consist, for example, of an image of one person hitting another (image) in anger over something the other person has done (a conceptual representation). A script consists of a sequence of vignettes. Such scripts define situations and guide behavior: the person first selects a script to represent the situation and then assumes a role in the script. Once a script has been learned, it may be retrieved at some later time as a guide for behavior.

A second social-cognitive theory, developed by Kenneth Dodge and colleagues, focuses on attributions, which are the explanations people make about why others behave the way they do. For example, if a person trips you, a hostile attribution would be that the person did it on purpose to hurt you. Aggressive people tend to make hostile attributions.

A third social-cognitive theory, developed by Craig Anderson and colleagues, is called the General Aggression Model. According to this model, aggression is the result of situational and personality factors that influence internal states such as thoughts, feelings, and physiological arousal (e.g., heart rate).

What Causes Aggression?

While much is still unknown, research has shown that there are three major causes of aggression: nature, nurture, and the

environment. The factors are not mutually exclusive or even independent; often they act together.

Nature

Gender differences

Gender differences in aggression are apparent from a very early age, and appear to remain relatively consistent throughout life. By preschool, boys display higher levels of physical aggression than girls. This divide becomes more pronounced through childhood and adolescence, and is clearly demonstrated by the drastic gender difference in murder rates around the world. Research further shows that males are more likely than females to express aggression in order to ensure the sexual fidelity of their partners. For example, men often report higher levels of anxiety and dissatisfaction toward sexual infidelity than toward emotional infidelity (i.e., being in love with another person), whereas females show the opposite pattern. Females show higher levels of relational and indirect aggression than do males.

These gender differences highlight our evolutionary ties with aggression. A man can most effectively pass on his genes by making sure that a partner is carrying his child, and so he is able to use strength and power to suppress his mate's partners. A woman is most likely to pass on her genes by making sure that the man she mated with remains committed to her child, and so she uses indirect aggression to intimidate rival mates.

Age differences

Across cultures, aggressive behaviors appear very early in childhood. Infants display angry facial expressions by 4 months, and interpersonal aggressive behaviors develop quickly thereafter. The existence of aggressive behavior at such a young age suggests that there must be at least some inborn aggressive tendencies.

Research shows that toddlers 1–3 years old are the most aggressive group of humans on the planet. In daycare settings, about 25% of interactions among toddlers involve some kind of physical aggression (e.g., one child pushing another child down). No other group, not even violent youth gangs or hardened criminals, resorts to physical aggression 25% of the time. Fortunately, children cannot do much damage at that age!

After age 3, most people become less aggressive over time. However, a subset of people become more aggressive over time. The most dangerous years for this subset of individuals (and for society) are between ages 15 and 30, when violent crime rates are the highest.

Although these generalizations summarize the data accurately, exact developmental trends in general aggression are difficult to measure because aggressiveness manifests itself in different ways at different ages – for example, in taking things at age 4, fighting at age 8, telling lies about others at age 12, vandalism at age 16, and murder at age 27.

Personality traits

We all know that some people lash out aggressively at others at the slightest provocation, while other people hardly ever lash out. There is a 'dark triad' of personality that is linked to aggression, violence, and other antisocial behaviors: (1) psychopathy, (2) narcissism, and (3) Machiavellianism.

Psychopathy is a personality disorder marked by callous and unemotional affect and low empathy for others. Psychopaths often engage in antisocial behavior to gratify their own desires, and show little for their actions. They focus on immediate rewards rather than long-term consequences, and have difficulty learning from their past mistakes. The term narcissism comes from the mythical Greek character who fell in love with his own image reflected in water. Narcissists have a grandiose, inflated view of themselves, and a sense of entitlement. Narcissists lash out aggressively at others who criticize them. The term Machiavellianism comes from the Italian Renaissance diplomat Niccolò Machiavelli, who wrote *The Prince*, a guide for the prince to maintain his power and authority over subordinates by any means, including cunningness and force.

Biological factors

There are a variety of biological factors that appear to influence aggression. While most of them are insufficient to cause aggression and require some sort of situational trigger, they nonetheless increase the likelihood of aggression.

People with lower levels of arousal, such as blood pressure and heart rate, tend to exhibit more aggression than those with average (or higher) arousal ratings, perhaps because they seek to increase their arousal levels by engaging in antisocial behavior. In one experiment, men who responded very little physiologically to violent movie clips acted more aggressively than those who had a higher response.

Research has also established a strong link between low levels of the neurotransmitter serotonin and aggressive behavior. Serotonin is referred to as the 'feel good' chemical in our brains, and so when we lack a sufficient amount of it, we may be more inclined to behave aggressively. This relationship has been demonstrated causally using both animal and human participants. Moreover, the male sex hormone testosterone has been linked with increased aggression, but less consistently. Higher levels of plasma testosterone probably increase aggression slightly, but the outcome of winning and dominating affects testosterone levels just as much.

Overall executive functioning also has a significant impact on the likelihood of aggression. This type of higher-order cognitive functioning occurs toward the front of the brain just behind the forehead, called the prefrontal cortex. Damage to the prefrontal cortex has been shown to directly increase aggression levels. Prefrontal cortex damage can also create several problems that increase the likelihood of aggression, such as low IQ and the development of attention deficit hyperactivity disorder (ADHD).

Genetics

Although there has yet to be a conclusive demonstration of the heritability of aggressive inclinations in humans, research suggests that certain people have a genetic predisposition to behave aggressively. In one study, people with a particular variation of the gene that determines monoamine oxidase activity (MAOA) were at a significantly higher risk of becoming aggressive adults, but only if they had been abused in childhood. Abused children with lower MAOA became more aggressive adults than both nonabused children with MAOA depletion and abused children with normal MAOA. Another important

study showed that individuals who had a gene variation that lowered serotonin and dopamine activity were at a higher risk for antisocial behavior in adolescence.

Nurture

There is substantial support for the argument that aggression is, at least partly, determined by situational factors. For instance, although the sex differences discussed earlier may suggest that aggressive tendencies are innate, sex differences in aggression disappear under high levels of provocation. In fact, statistics show that female partners are actually more likely than their male counterparts to exhibit domestic physical aggression in heterosexual relationships (although males are likely to cause more physical injury or even death). Clearly, 'nature' cannot fully explain aggression.

Physical situation

Subtle unpleasant changes in our immediate surroundings often influence our levels of aggression. One salient correlate of aggression is heat. Research has consistently demonstrated a link between hot temperatures and aggression. Other non-social, unpleasant sensations such as noxious odors (e.g., smoke, pollution), and loud (particularly uncontrollable) noises have also been linked to aggression. Certain visual stimulation, including aggressive cues (e.g., weapons), can also trigger aggressive behavior.

It is also important to consider how the immediate situation influences aggression. For example, rates of aggression may increase among certain populations such as prisoners, not because those individuals are naturally more aggressive, but perhaps because the enclosed prison environment makes them more prone to aggressive behavior.

Social situation

Our social environment as well as our physical environment can contain unpleasant situational cues. Crowding, defined as the perception that there are too many people in the vicinity, can increase aggression.

When we are rejected by others in a social situation, we are also more prone to use aggression. For example, an analysis of school shooters found that 13 out of the 15 shooters had been rejected by a romantic partner prior to the shooting spree. The greater the degree of social rejection, such as in extreme cases like ostracism (being directly isolated or rejected by others), the more prone a person is to using aggression.

Aggressive arousal

Many factors that increase aggression (e.g., heat, violence in media) also increase physiological arousal. Thus, it is not surprising that arousal is linked to aggression. There are at least four reasons why arousal might increase aggression. First, high arousal might be interpreted as an aversive stimulus, which would trigger aggression in the same ways that other aversive stimuli have been shown to do. Second, arousal narrows attention. If aggressive cues are salient in the situation, then people will focus most of their attention on the aggressive cues. Third, arousal increases the dominant response, which is defined as the most common response in that situation. Thus, whatever people are normally inclined to do (including

behaving aggressively), they will be even more strongly inclined to do when they are physiologically aroused. Fourth, arousal from any source (e.g., exercise, coffee, an exciting movie) may be misinterpreted as feelings of hostility or aggression if people are later provoked, a process called excitation transfer. For example, a woman is accidentally bumped while walking to her car after a long workout at the gym. Her increased heart rate and perspiration from exercise might be mislabeled as anger at being bumped, if she yells at the person who bumped her.

Disinhibiting factors

All people have aggressive impulses, but most are able to inhibit these impulses. However, some situational factors can reduce aggressive inhibitions. One such factor is alcohol. To use an analogy, alcohol increases aggression by paralyzing the brakes, not by stepping on the gas. In murder cases, at least half of the perpetrators were intoxicated when they murdered the victims (often the victims were also intoxicated). Laboratory experiments have shown that alcohol seems to increase aggression in combination with other factors. Factors that normally increase aggression (e.g., frustration, provocation) have a stronger effect on intoxicated people than on sober people. If someone is insulted, his or her response will be more violent if he or she is drunk than when he or she is sober. When there is no provocation, however, the effect of alcohol on aggression may be negligible.

Similarly, anonymity has been consistently linked to increased aggression. When people are anonymous, they seem to lose their inhibitions against behaving aggressively. Perhaps this is why violent crimes are much higher at night than during the day time, and why bank robbers and members of the Ku Klux Klan wear masks when they commit violent crimes. Laboratory experiments show that aggressive behavior increases when people cannot be identified by name or appearance.

Environment

Apart from personality and situational influences, a person's overall environment can have quite a significant impact on aggression.

Family

Children from neglected or broken family backgrounds are more likely to become aggressive adults than children from stable families. Moreover, children are more likely to become aggressive adults if they witness a significant amount of domestic violence while growing up. Those who are physically abused at a young age are more likely to become physically abusive parents and romantic partners themselves.

Peers

As children grow, peer groups wield a greater influence on their behavior. Children who are rejected by their peers are more likely to behave aggressively later in life, and vice versa (aggressive children are likely to be rejected by their peers). Having antisocial peers is also a risk factor for aggression and violence.

Community

Beyond family and peers, a person's collective culture also influences aggression. Societal norms and expectations differ widely across cultures, and often impact aggressive behavior. Violence and aggression are more acceptable in some cultures (e.g., cultures that place a large emphasis on honor) than in others. There are great regional differences in aggression in the United States, with violence levels being much higher in the South than in the North. Psychologists Richard Nisbett and Dov Cohen theorize that this discrepancy is a result of a southern culture of honor. Southern settlers typically came from herding families that relied on livestock to make a living, whereas Northern settlers relied on agriculture. Aggression is theoretically more practical and useful in protecting animals rather than crops, and so the idea of using aggression to preserve the honor and success of their family business became ingrained in individuals from the South. The overall condition of a particular community also affects aggression. Impoverished neighborhoods are often more conducive to crime and violent behavior. Similarly, communities that are characterized by high levels of racism, prejudice, or intolerance provide a breeding ground for aggression.

Media

Violence in the mass media can increase aggression and fear of victimization, and make people numb to the pain and suffering of others. Experimental studies have shown that violence in the mass media causes aggression, and longitudinal studies have shown that the effects can persist for decades. In fact, in 1972, the US Surgeon General issued a warning about the harmful effects of violence in TV programs and films. Violent video games, which were developed after the Surgeon General had issued his warning, may be even more harmful than violence in TV programs or films, for at least three reasons. First, video game play is active, whereas watching TV is passive. People learn better when they are actively involved. Suppose you wanted to teach a person how to fly an airplane. What would be the best method to use: read a book, watch a TV program, or practice on a video game flight simulator?

Second, players of violent video games are more likely to identify with the violent characters therein. If the game is a first-person shooter, players have the same visual perspective as the killer. If the game is third person, the player controls the actions of the violent character from a more distant visual perspective. In either case, the player is linked to a violent character. In a TV program, viewers might or might not identify with a violent character. Third, violent games directly reward violent behavior by awarding points or allowing players to advance to the next game level. In some games, players are also rewarded through verbal praise, such as the words 'Nice shot!' or 'Impressive!' after killing an enemy. It is well known that rewarding behavior increases its frequency. In TV programs, reward is not directly tied to the viewer's behavior. A recent Dutch study by Hanneke Polman and her colleagues provided the first evidence that playing violent games produces stronger effects than simply observing violence. In this study, some participants played violent games, whereas other participants watched the games being played, and the effects of aggression were stronger for the players than the watchers.

What Reduces Aggression?

Although aggressive behavior may never be eliminated from society, various treatments have been developed to reduce aggression. In all cases, any method of reduction is most effective when applied in early childhood before aggressive behavior becomes crystallized. In general, two primary approaches have been used to reduce aggression: behavior modification and cognitive-behavioral therapy.

Behavior Modification

The main goal of behavior modification is to reduce aggression by reinforcing the learning of nonaggressive behaviors. This method is most effective when applied to instances of proactive aggression. People often aggress in subtle, indirect ways, such as talking behind the back of a coworker or inviting all friends but one to a party. Proactive aggression involves a certain degree of planning, patience, and cunning in order to achieve one's goals, for example, trying to malign the reputation of a detested peer. In order to reduce this type of aggression, behavior modification principles use a technique called the differential reinforcement of alternative behavior. Rather than simply rewarding someone for not using aggression, this approach seeks to actively reinforce prosocial behaviors. In this way, aggression is decreased because prosocial behaviors are increased. For example, an aggressive child could be given a candy bar every time he helps his sister. Furthermore, it is especially helpful to reinforce positive social skills such as engaging in 'small talk' so that the child learns effective ways to achieve a goal without using aggression (e.g., accommodating, negotiating). The overall effectiveness of these methods is increased by the presence of prosocial role models, such as parents or celebrities, who reinforce and model prosocial, nonaggressive behaviors.

Cognitive-Behavioral Therapy

Cognitive-behavioral therapy is commonly applied to treat reactive, hostile aggression. Given that these cases are characterized by feelings of anger and rage, cognitive-behavioral techniques attempt to reduce emotional responses to provocation. Techniques typically involve meditation, relaxation, and concentration on peaceful imagery. In addition, people are trained to mentally prepare for future provocation by learning to interpret provocative events in a more benign manner. For example, in self-instructional training, people memorize nonaggressive thoughts like 'I know how to control my anger,' 'I will not lose control,' and 'Just continue to relax.' Individuals are trained to manage their aggressive thoughts by imagining a potential conflict and visualizing a calm, peaceful solution. When behavioral techniques like meditation and relaxation are combined with the rehearsal of nonaggressive cognition, reactive aggression is most effectively reduced.

Conclusion

Aggression is a complex and multifaceted behavior, and has been used by living species for millions of years to attain

desirable goals and resources. Aggression researchers have attempted to delineate the origins, causes, and defining characteristics of aggression. Over time, aggression and violence levels have declined. We hope that aggression research will help this trend to continue.

See also: Anger (00023); Group Dynamics (00184); Personality Development (00273); Social development (attachment, imprinting) (00382); Media influence on behavior (00386).

Further Reading

- Anderson CA and Bushman BJ (2002) Human aggression. *Annual Review of Psychology* 53: 27–51.
- Bandura A, Ross D, and Ross SA (1961) Transmission of aggression through imitation of aggressive models. *Journal of Abnormal and Social Psychology* 63: 575–582.
- Berkowitz L (1993) *Aggression: Its Causes, Consequences, and Control*. New York: McGraw-Hill.
- Bushman BJ and Baumeister RF (1998) Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: Does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology* 75: 219–229.
- Bushman BJ and Huesmann LR (2006) Short-term and long-term effects of violent media on aggression in children and adults. *Archives of Pediatrics & Adolescent Medicine* 160: 348–352.
- Buss AH (1961) *The Psychology of Aggression*. New York: Wiley.

- Carlson M, Marcus-Newhall A, and Miller N (1990) Effects of situation aggression cues: A quantitative review. *Journal of Personality and Social Psychology* 58: 622–633.
- Dodge KA (1980) Social cognition and children's aggressive behavior. *Child Development* 51: 620–635.
- Dollard J, Doob LW, Miller NE, Mower OH, and Sears RR (1939) *Frustration and Aggression*. New Haven, CT: Yale University Press.
- Huesmann LR and Eron LD (1984) Cognitive processes and the persistence of aggressive behavior. *Aggressive Behavior* 10: 243–251.
- Loeber R and Hay D (1997) Key issues in the development of aggression from childhood to early adulthood. *Annual Review of Psychology* 48: 371–410.
- Lorenz K (1966) *On Aggression*. (M. K. Wilson, trans.). New York: Harcourt, Brace.
- Miczek KA, Mirsky AF, Carey G, DeBold J, and Raine A (1994) An overview of biological influences on violent behavior. In: *National Research Council Understanding and Preventing Violence*, vol. 2, pp. 1–20. Washington, DC: National Academy Press.
- Nisbett RE and Cohen D (1996) *Culture of Honor: The Psychology of Violence in the South*. Boulder, CO: Westview Press.
- Warburton WA, Williams KD, and Cairns DR (2006) When ostracism leads to aggression: The moderating effects of control deprivation. *Journal of Experimental Social Psychology* 42(2): 213–220.

Relevant Websites

- <http://www.rcgd.isr.umich.edu/aggr/> – Aggression Research Program
- <http://www.colorado.edu/cspv/> – Center for the Study and Prevention of Violence
- <http://www.mediafamily.org/index.shtml> – National Institute on Media and the Family
- <http://www.psychology.iastate.edu/faculty/caa/csv/index.htm> – The Center for the Study of Violence
- <http://socialpsychology.org/> – The Social Psychology Network