Bimodal classification of aggression: affective defense and predatory attack

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Abstract

The development of a refined classification scheme for the categorization of human aggression is a key to improved diagnosis and treatment. The principal thesis of this review is that much of animal and human aggression contains affective or predatory characteristics. Affective defense, as defined in both the human and animal literatures, is an aggressive response based on the presence of elements of either fear and/or threat, which may be real or perceived. Predatory attack has been understudied relative to affective defense, and consists of a purposeful and goal-directed attack with absence of sympathetic arousal. In this review, we argue that a variety of classification schemes reported in both the animal and human literature could be relabeled as affective defense and predatory attack. The significance of this approach is that it: (1) links animal and human research; (2) can lead to new lines of investigation in humans; and (3) may provide the impetus for new treatment studies. © 2002 Elsevier Science Ltd.

Keywords: Human aggression; Animal aggression; Instrumental aggression; Hostile aggression

1. Introduction

Violence and rage have become major public health and social problems in the United States, as well as elsewhere around the world. The overriding question that must be raised is why so little progress has been made in the treatment of aggression in certain psychiatric and neurological disorders. One possible source of difficulty is that aggression may not represent a unitary phenomenon. It is our contention that the development of a refined classification
scheme for the categorization of human aggression is a key to improved diagnosis and treatment. The purpose of this review is to evaluate several models of aggression, characterized by both dichotomous and continuous properties, which may be of experimental, as well as clinical, significance.

Based on evidence provided from both the animal and human literatures, our primary focus is to highlight the importance of that work which subtypes aggression into affective and predatory components. However, there is a paucity of empirical literature that utilizes the terms “affective” and “predatory” in describing aggression in humans. Nevertheless, there is a much wider body of literature in both adult and childhood aggression that employs other related terms, such as “proactive” and “reactive” (Crick & Dodge, 1996), typical of the terminology used in childhood studies, and “instrumental” and “reactive” (Cornell et al., 1996), typical of the terminology used in adult studies. The literature chosen for discussion in this review represents, in our opinion, the clearest descriptions of affective and predatory aggression, even if that terminology was not employed by the authors. One author (Eichelman, 1985, 1992) reviewed animal and human aggression and argued that there is a need for a more accurate typology. Our analysis argues for the subtyping of aggression into distinct predatory and affective categories of behaviors across different species, including humans, as a heuristic approach.

2. Animal models of aggression

Violence is influenced by cultural, environmental, and social forces that shape the manner in which it is expressed (Eron, 1987). Nevertheless, as supported by a significant body of data described below, the neural basis of aggressive behavior in humans resembles that in animals, and the forms of aggression seen in humans parallel those observed in animals. Thus, central questions that may be asked are: (1) What are the forms of aggression that are studied in animal research? (2) How may they relate to each other? (3) How do they relate to human forms of aggression?

In attempting to answer these questions, we must begin by defining aggressive behavior. Perhaps, the most common definition used is a variant of one that was described by Moyer (1968). It refers to aggression as “a behavior that causes (or leads to) harm, damage or destruction of another organism.” Several issues may be raised from this definition. The first is that it does not include related affective responses such as “threat” and “hostility.” Second, we have to distinguish between two levels of definition — one based on principles of social psychology and the other based on likely underlying neuronal mechanisms.

In terms of social psychology, it is possible to postulate distinct behavioral or social mechanisms that distinguish “rage,” “threat,” and “hostility.” However, it is also possible that similar neural mechanisms underlie different manifestations of aggression. An example at the animal level is “affective defense,” which includes several different behavioral manifestations (i.e., threatening postures, hissing, growling, and retraction of the ears). Here, each of these components of affective defense is driven from a common neural mechanism. At the human level, the outward expression of aggressive behavior can reach much higher levels of complexity and, accordingly, may include a much wider spectrum of responses (e.g., physical
assault, verbal and postural displays), which may also reflect a common neural mechanism. Therefore, an ideal solution would be to identify and characterize those behaviors that are related by a common neural mechanism, as well as to distinguish those behaviors whose mechanisms differ.

Approximately 30 years ago, Moyer (1968) attempted to define different kinds of aggression on the basis of experimental methodologies applied by various investigators. In effect, what Moyer established were “operational” definitions of aggression based upon the arrangement of different environmental conditions. These categories include: (1) Fear-induced — the animal is placed in a position where escape is denied and turns, instead, to attack a second animal perceived as a threat. (2) Maternal — attack occurring when an animal is placed close to its young and a second animal approaches. (3) Intermale — attack occurring by a male towards another male, but not a female, in its immediate environment. (4) Irritable — attack occurring in response to a threat, intimidation, or to an environmental condition which is irritating. (5) Sex-related — in humans, sexual arousal is frequently associated with increased levels of hostility or hostile fantasies. In animals, components of aggressive behavior are sometimes associated with sexual acts. The aggressive and sexual aspects appear as components of the same behavioral act, thus, creating difficulties in classifying these behaviors. (6) Predatory — aggression specifically triggered by the presence of a prey object within the visual field of the predator; this response can be elicited in experimental conditions by stimulating the lateral hypothalamus of the cat (Siegel & Brutus, 1990; Siegel, Roeling, Gregg, & Kruk, 1999). The response is characterized by stalking of an anesthetized rat (in the laboratory), which is followed by a bite to the back of its neck, which continues until stimulation is terminated. Aside from some mild pupillary dilatation, few autonomic signs are present. (7) Territorial — attack occurring when an intruder enters into an area that an animal has determined for itself to be its own domain. This is commonly known as a resident–intruder model. Most often, tests involving the resident–intruder model utilize animals of the same species although a resident animal might also attack an intruder of a different species.

2.1. Other ways of categorizing aggression

2.1.1. Affective defense

Several attempts at categorizing aggression have been made by other investigators, which upon reflection, relate closely to one or more of the models described by Moyer. One model is that of affective defense, which has been used in the laboratory over the past 40 years. It occurs in nature in the presence of another animal (either a conspecific or an animal of another species) that is perceived to be a threat. The basic elements of this response include a flattening of the ears, a shrinking or lowering of the body, drawing in of the head, piloerection, hissing, pupillary dilatation, and a stiffening of the tail which becomes motionless followed by a paw strike at the conspecific (Leyhausen, 1979). A similar pattern of responses is elicited by electrical stimulation of the cat’s medial hypothalamus or midbrain periaqueductal gray (PAG), thus, allowing it to be used as an effective experimental model of aggression (Flynn, Vanegas, Foote, & Edwards, 1970; Fuchs, Edinger, & Siegel, 1985a, 1985b; Hess & Brugger, 1943; Siegel & Brutus, 1990; Siegel & Pott, 1988).
Valzelli (1981) established a classification scheme for aggression that is virtually identical to Moyer’s typology. Valzelli’s classification includes the use of the term “competitive” aggression, which corresponds to Moyer’s category of “intermale” aggression. Valzelli gives special weight to this type of aggression, perhaps because it is so widespread throughout the animal kingdom and has likely relevance to human aggression. He points out that this form of aggression can be elicited quite readily even if two strange males of the same species are placed in proximity to each other. Competitive aggression frequently induces a form of hierarchical dominance. It is suggested that positive functions of hierarchies may serve a variety of functions. These include: (1) a unified appearance capable of defending against external threats; (2) limitations on the extent to which aggressive displays are expressed; and (3) a strengthening of the group by selectively eliminating its weakest members through attrition.

Valzelli also places special emphasis upon irritative aggression. The assumption made here is that aggression induced by irritating stimuli such as intense heat, hunger, and thirst is common in the animal kingdom, including humans. Animals exposed to such stimuli attack animate and inanimate objects. Such reactions are frequently associated with rage behavior, and this form of aggression has been widely used in experimental conditions. When extrapolating to humans, Valzelli suggests that the expression of a “bad temper” is a function of the extent to which a person can tolerate irritating stimuli.

3. Bimodal properties of aggression

Over the past few decades, a number of investigators have attempted to characterize aggressive behavior in either animals or humans in a bimodal manner. In the animal literature, the use of the terms offense and defense have been applied to describe what appears to be opposing ends of a continuum (Adams, 1979). However, this bimodal classification scheme will not be considered because it has not been utilized in studies of human aggression.

3.1. Affective defense vs. predatory attack

A second bimodal classification scheme defines all aggression as belonging to one of two categories: Predatory attack or affective defense behavior (Flynn et al., 1970; Siegel & Brutus, 1990; Siegel & Pott, 1988). If this were indeed the case, it should also be possible to reduce the seven types of aggression described by Moyer into these two categories. Indeed, categories of aggression that include fear-induced, maternal, intermale, sex-related, irritable, and territorial aggression may all incorporate a similar common feature, namely an aggressive response based upon the presence of elements of either fear and/or threat that may be real or perceived. Thus, it is reasonable to relabel these categories of aggression under the rubric “affective defense.”

This notion provides a more unified concept of aggressive behavior with respect to “affective defense” but is not entirely novel. A parallel perspective was espoused many years ago by Scott (1966). In focusing upon defensive aggression at the time fighting occurs, Scott argues that the total response pattern for defense, depending on the likely outcome of the confrontation may include threat, postures characteristic of defense or defeat, signs of escape, dominance, subordination and territoriality. The motivation frequently triggering aggressive
responses may be pain, a threat of another organism of the same or different species, and
territory perceived by the animal in question as its own (i.e., classically demonstrated with the
resident–intruder model of aggression).

The unique characteristics associated with affective defense have been indicated by Moyer.
He addresses the fact that submission and appeasement, together with their associated
postural positions, are generally associated with affective defense and occur in intermale
aggression. Moreover, these forms of behavior have been clearly described in different
species, including mice, rats, cats, dogs, and primates. Moyer argues that submission reflects
an aggression-inhibiting mechanism that has survival value by signaling to the dominant
animal that the fight is over. In addition, the posture adopted by the defeated animal makes it
difficult for the dominant animal to continue its aggression. The ultimate effect is that the
fighting is terminated, preventing further harm to the defeated animal.

In contrast to affective defense, predatory attack in animals is limited to a single category of
aggressive behavior. Predatory behavior has been studied most extensively in the cat where this
response can be elicited by electrical stimulation of the lateral hypothalamus. Experimentation
using a rodent model of predatory attack has also been described (Sandnabba, 1995). The use
of the feline model of predatory attack in ethological and experimental settings has enabled
investigators to obtain considerable information concerning the neural (Flynn, 1976; Flynn et

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<td>CCK&lt;sub&gt;B&lt;/sub&gt; receptor activation in PAG facilitates AD elicited from MH and suppresses PA elicited from LH</td>
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<td>SP NK&lt;sub&gt;1&lt;/sub&gt; receptor activation in MH mediates ME-induced facilitation of AD and suppression of PA elicited from LH</td>
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Abbreviations: AD, affective defense; CE, central nucleus of amygdala; DR, defensive rage; LH, lateral hypothalamus; ME, medial amygdaloid nucleus; MH, medial hypothalamus; PA, predatory attack behavior; VMH, ventromedial nucleus of hypothalamus.
al., 1970; Siegel & Brutus, 1990; Siegel & Pott, 1988) and behavioral (Leyhausen, 1979) properties of this form of aggression. Because it is different from other forms of aggression, predatory attack may be viewed by some ethologists not as a form of aggression, but rather as behavioral strategy in association with feeding behavior (Adams, 1980; Palanza, Rodgers, Della Seta, Ferrari, & Parmigiani, 1994). Nevertheless, most investigators disagree with this notion, and its role in normal and pathological states is considered below.

The descriptions provided above indicate the behavioral and physiological differences that exist between affective defense and predatory attack. Pharmacological studies conducted over the past decade have examined the effects of neuropeptides on feline aggression. Such studies have provided evidence that opioid, cholecystokinin (CCK), and substance P (SP) receptor activation or blockade differentially affect these two forms of aggressive behavior (Siegel & Brutus, 1990; Siegel & Pott, 1988; Siegel et al., 1999) (see Table 1). Evidence suggesting differential effects of peptidergic receptor activation on these two forms of aggression may have important implications concerning future pharmacological approaches to the treatment of aggressive disorders.

It should be noted that normally, in felines, mixed responses of predation and affective defense do not occur at the same time (personal observations). As we have described below, this contrasts somewhat with the descriptions in humans, where affective and predatory components of aggression may appear together.

4. Are there human equivalents to affective defense and predatory attack?

4.1. Affective defense

Several investigators have described and categorized affective defense in humans (Meloy, 1988; Vitiello, Behar, Hunt, Stoff, & Ricciuti, 1990). Meloy (1988) described the following characteristics, which include an intense sympathetic arousal, an affective attack based upon a real or perceived (which could be delusional) threat to the person, and an immediate (i.e., impulsive) response to the threat stimulus. Meloy extended his analysis by adding other properties of this form of aggression, including displacement of the perceived threat stimulus, limited response duration, ritualized or stereotyped posturing prior to attack, and subjective experience of emotion at the time of attack. Finally, the goal object of affective defense is to reduce or eliminate the threat object from the environment, thus, presumably reduce the level of tension.

This description of affective defense behavior, when seen in humans, bears a striking resemblance to the term “episodic dyscontrol” that has been used by a variety of investigators (Monroe, 1978). According to Monroe, episodic dyscontrol is a term that characterizes an “explosive personality,” reflecting the absence of impulse control. This behavioral condition has often been associated with paranoia and altered perceptual states and presumably occurs in response to stimuli that evoke fear, anger, or rage. This response is currently referred to as an “Intermittent Explosive Disorder” in the psychiatric diagnostic classification scheme of the American Psychiatric Association (1994). Monroe proposed that it results from an imbalance of “urge control” mechanisms in which either a normal urge
control mechanism is overwhelmed by an intense drive or a poorly developed control mechanism is overwhelmed by a normal urge. Episodic dyscontrol assumes the presence of excessive neuronal discharges from limbic structures to subcortical regions such as the hypothalamus and brainstem. In fact, this represents a central thesis of Monroe, who provided extensive evidence in support of this view.

It is of interest to note that individuals displaying affective aggression have been shown to have lower left and right prefrontal functioning, high right hemisphere subcortical functioning, and lower right hemisphere prefrontal/subcortical ratios than controls (Raine et al., 1998). Further, the authors point out that prefrontal cortical functioning of predatory murderers were similar to that of controls. The significance of this finding is that it provides functional anatomical evidence of the difference between affective and predatory aggressors. The differences between these two form of human aggression are considered in detail below.

4.2. Predatory attack

A review of the literature reveals that the vast majority of studies that have been conducted in humans have concerned forms of aggressive behavior most closely linked with affective defense. A perusal of the test batteries that have been constructed over the years leads one to draw a similar conclusion. Almost all items taken from such tests as the Buss–Durkee hostility scale (Buss & Durkee, 1957), the Overt Aggression Scale (Yudofsky, Silver, Jackson, Endicott, & Williams, 1986), or the updated Buss–Perry Aggression Questionnaire (Buss & Perry, 1992) relate to affective forms of aggression rather than to predatory-like behavior. This reflects the fact that affective defense is inherently easier to measure than predatory attack, and one can speculate that individuals who rely on predatory forms of aggression generally do not present to mental health or medical providers for treatment. Nevertheless, a few papers that have been published over the past few years have specifically identified the presence of predatory forms of violence in humans.

Perhaps, the most extensive description of human predatory aggression was provided by Meloy (1988, 1997). Of central importance is that the characteristics of human predatory aggression contrast with those associated with affective defense. In particular, Meloy pointed out the virtual absence of sympathetic signs that are characteristic of affective defense. Because of the absence of these signs, it is often difficult to detect any response patterns that could be used to predict the onset of predatory aggression. Individuals displaying predatory violence may shift to affective aggression when the victim is in physical contact with the aggressor. The trigger for the shift in response patterns is the physical presence of the victim, which likely activates acute anxiety, fear, or anger reactions (Meloy, 1988, 1997). Further, it is possible that the reverse sequence may take place, namely, that predatory aggression may follow affective aggression as a means of causing more punishment to the victim. This behavioral pattern may be particularly true with psychopaths who express sadistic impulses (Meloy, 1988, 1997). Thus, in contrast to what is typically observed in animals, it is possible and perhaps likely that certain individuals will display mixed aggressive responses which contain both predatory and affective properties.

A second characteristic of predatory aggression is that there appears to be little conscious awareness of emotion. If there is any emotion at all, it is associated with positive reinforce-
ment, in which the individual may possess feelings such as exhilaration (Meloy, 1988, 1997). The aggressive act may also heighten self-esteem, resulting in greater sense of self-confidence and sadistic pleasure (Meloy, 1988, 1997). Such feelings contrast dramatically with affective defense which is associated with aversive feelings.

A third property is that, similar to the cat, the behavior is purposeful and planned. The aggressor chooses the target, the manner of attack, and the magnitude of the response. In this way, it parallels predatory attack in subhuman species. One major difference, however, is that in subhuman species such as the cat, predatory attack is typically directed against an animal of another species. In humans, the attack is directed against other humans. The exception here would be the human “sport” of hunting, which of course is directed against lower species. Concerning the motivation underlying such behaviors, in animals such as felines, the purpose is one of food-seeking behavior. But what is the motivation in humans? Certainly, it would seem that food-seeking behavior should play little or no role since food is readily available in supermarkets or local grocery stores in most civilized societies. Meloy suggests, instead, that predatory behavior “may be used to gratify certain vengeful or retributive fantasies. It may be subjectively experienced as a necessary behavior that would be clinically assessed as compulsive” (Meloy, 1988, p. 215).

A fourth property described by Meloy is that there is no perceived threat. Instead, the target is actively sought by the aggressor rather than his responding to a threat by an opponent, which occurs during affective defense. The aggressor’s active approach to the target can be considered a form of “stalking,” which may represent an homologous form of behavior to that elicited by the cat in its “stalking” of a prey object.

A fifth property is that predatory aggression may be triggered by a variety of objectives such as accumulation of money, power, control, or gratification of sadistic desires and fantasies, and relief from compulsive drives. This contrasts with affective defense where there is a single objective of reducing the perceived threat.

Meloy describes other properties of predatory aggression. There is limited or no displacement of the target of aggression in contrast to affective defense, where considerable displacement may occur as the aggressor may quickly shift to another target during its defensive acts. The predatory response may take place over a period of minutes or extend over years and may be preceded or followed by some form of private rituals. Such rituals may involve the selection of certain items of clothing, nationalistic or religious symbols, weapons, or masks. The aggressor may anthropomorphize these objects in order to fantasize control over them and, thus, provide a basis for exerting control over the actual victim. In comparison to affective defense, there appears to be an important cognitive component to the response in which fantasy may play a key role. The human predator also has the ability to focus on the target by filtering out other sensory information in much the same way that a cat will do in focusing on its prey object (Meloy, 1988, 1997).

5. Childhood subtypes of aggression

Much of the empirical research on subtyping of aggression in humans has focused on populations of children (Atkins & Stoff, 1993; Dodge & Coie, 1987; Loeber & Schmaling,
1985). In the child aggression literature, a consistent dichotomy has emerged between an impulsive–reactive–hostile–affective subtype and a controlled–proactive–instrumental–predatory subtype, which are qualitatively different from each other in terms of neurobiology as well as phenomenology (Vitiello & Stoff, 1997). In a recent study, Crick and Dodge (1996) examined 624 9–12-year-old children who were classified as reactive–aggressive, proactive–aggressive, mixed type or nonaggressive. These authors made a theoretical distinction between “reactive” as “an angry, defensive response to frustration or provocation” and “proactive” as “a deliberate behavior that is controlled by external reinforcements ... a means for obtaining a desired goal” (p. 993). These authors found that children with histories of reactive aggression would interpret a peer’s behavior as intentionally harmful to the self and, in this case, aggression may serve as a retaliation against the peer. In contrast, children with proactive aggression felt more confident about their ability to perform aggressive acts than their peers. While the definitions used in this article are somewhat incomplete, we contend that there is strong overlap between “reactive” and “affective” aggression and between “proactive” and “predatory” aggression.

Vitiello et al. (1990) recognized the need for a better classification system for human aggression in order to guide diagnosis and treatment. This study is one of the few published reports that has attempted to distinguish individuals according to the predatory/affective dichotomy using these terms and with direct reference to the animal literature. Seventy-three children and adolescents with histories of aggressive behavior, retrospectively defined via chart review, participated in this study. Assessments were made utilizing a 10-item questionnaire, where five items were designed a priori to measure affective rage and five items were designed to measure predatory attack. Examples of questions used to assess affective rage include “nonprofitable damaging of own property” and “completely out of control when aggressive.” Predatory items included “hides aggressive acts” and “very careful to protect self when aggressive.” One group of patients presented with predominantly affective aggression and a second had a mixed predatory–affective pattern. Patients with affective aggression were more likely to have lower IQ, to receive lithium or neuroleptics, and to have a chart diagnosis of schizophrenia. History of drug abuse was more frequent among the predatory patients (Vitiello et al., 1990). As indicated above in the discussion of Meloy’s work, “predatory” children demonstrated both predatory and affective aggressive behavior. This indicates a difficulty in one’s attempt to identify individuals who exhibit pure types of predatory aggression. Limitations of this study also included relatively small sample size, small number of items in the final questionnaire, and lack of physiologic correlates of sympathetic arousal.

There has been limited study into the differential effectiveness of treatments for the various subtypes of aggression. Malone et al. (1998) examined treatment effectiveness utilizing the questionnaire developed by Vitiello et al. (1990). Subjects were 28 aggressive children participating in an ongoing double-blind, placebo-controlled study of lithium carbonate as a treatment for reducing aggression. Treatment response was associated with a more affective and less predatory subtype of aggression. Although this study contained a small sample size, the results suggest that the subtyping of aggression into predatory and affective components might have important implications for treatment.
5.1. Hostile vs. instrumental aggression

Another bimodal classification scheme was recently proposed by Kingsbury, Lambert, and Hendrickse (1997) for the study of human aggression. They suggest that aggressive behavior can be classified into two categories: instrumental and hostile aggression (Aronson, 1992; Kingsbury et al., 1997). Related terminology from earlier empirical work includes differentiation between “instrumental” and “reactive” violent offenders (Cornell et al., 1996). Instrumental aggression can be understood in terms of operant conditioning. In this view, an act of aggression occurs because of the expectancy of the reinforcement or reward that is to follow. One can see from this model that the likelihood of committing an aggressive act may increase as a function of social reinforcement emanating from an environment where gangs or mobs are present (Kingsbury et al., 1997). Alternatively, in cases that possibly involve certain types of brain injured or psychopathic personalities, such individuals may not experience negative or guilt feelings after committing an act of aggression. Accordingly, the absence of punishment could increase the probability of occurrence of aggression.

While the goal of instrumental aggression is the acquisition of some form of reward, in which harm inflicted upon an individual serves as a tool for this end, the goal of hostile aggression is to specifically harm another individual (Kingsbury et al., 1997). It is triggered by stimuli in the environment such as the presence of a gun, a specific individual, or other threatening stimuli, and is facilitated by conditions that include punishment, fear, anxiety, and frustration. Associated with hostile aggression is a state of heightened behavioral and autonomic arousal. Hostile aggression may occur by an individual who was recently assaulted or perceived that he was threatened or insulted.

One can argue that there are striking parallels between instrumental and hostile aggression, and predatory attack and affective defense behaviors, respectively. There are distinct similarities between instrumental aggression and predatory attack in that the goal of both in animals and humans is positively reinforcing. In predatory attack, the response is planned, and its purpose is to achieve a specific goal — the killing of a prey object for food (in animals) and a symbolic or practical objective (in humans). In addition, few autonomic signs are present with instrumental aggression as is the case with predatory attack. Similarities between hostile aggression and affective defense include the following: both forms of aggression are activated by specific or perceived stimuli that are viewed as threatening; both occur in an impulsive manner; both are directed at producing harm to the object of the attack; and both are associated with marked autonomic signs (Kingsbury et al., 1997).

The concept of psychopathy has provided some utility in further distinguishing between affective (or hostile) and predatory (or instrumental) violence. Psychopathy refers to a constellation of personality and behavioral characteristics marked by disregard for social norms and values, irresponsibility, dishonesty, and emotional shallowness. Psychopaths constitute roughly 1% of the general population, but make up a significant proportion of the prison population (Hare, 1999). Psychopaths are unable to form strong emotional bonds with others and lack guilt or anxiety. Interpersonally, they are often described as grandiose, arrogant, callous, dominant, superficial, and manipulative (Hare, 1999). The concept of psychopathy has been operationalized by the work of Hare (1991, 1999); its assessment is now highly reliable and valid using trained clinicians as raters. One study found that
incarcerated “instrumental” violent offenders were more psychopathic than either “reactive” violent offenders or nonviolent offenders and concluded that “the link between psychopathy and instrumental violence supports the distinction between instrumental and reactive violence, and raised the possibility that the presence of instrumental violence could be an additional characteristic of psychopathic offenders” (Cornell et al., 1996, p. 790). Psychopaths most likely experience lowered autonomic arousal (Williamson, Hare, & Wong, 1987). The autonomic hyporeactivity that has been established in psychopathy is consistent with Meloy’s definition of lowered autonomic arousal in predatory attack. In conclusion, the advantage of applying the concept of psychopathy is that it helps to distinguish between predatory and affective forms of aggression by suggesting that psychopaths tend to be associated more closely with acts of predatory aggression.

6. Implications for treatment and research

Different definitions have been employed to characterize subtypes of animal and human aggression. These definitions may have influenced the design of experiments and methodologies employed. The lack of integration of these different methodologies may be a factor in slowing progress in the study of human aggression.

The major diagnostic category used to identify affective aggression in humans is “Intermittent Explosive Disorder,” which suffers from significant theoretical and psychometric shortcomings that limit its use in clinical and research settings. Preliminary attempts have been made to revise these criteria (Coccaro, Kavoussi, Berman, & Lish, 1998). Barratt and Slaughter (1998) argue for the application of a “discipline neutral” model, using synthesizing concepts, in order to integrate the data on “impulsive” aggression. Here, impulsive or affective aggression would be defined in reference to four categories of constructs (biological, cognitive, behavioral, environmental) in order to more fully characterize this form of aggression. We contend that the definition of “affective aggression,” defined here and elsewhere, is sufficiently broad to encompass these four constructs and may serve as a useful framework for directing future research.

Psychiatric researchers and clinicians have been focusing on the study and treatment of “impulsive” aggression. However, many aggressive acts (and many individuals) present more complex patterns of behavior, with “premeditated” acts mixed with “impulsive” ones. Unfortunately, the study and treatment of predatory aggression has been limited by our available research methods. Individuals who are prone to predatory acts may not reply truthfully on questionnaire surveys. While the use of social desirability measures may ameliorate this problem to a certain extent, retrospective reports of behavior remain inexact without physiologic correlates. Our rapidly expanding technologies may allow for a more comprehensive study of the human brain. For example, individuals with a self-report history of predatory behavior may show characteristic abnormalities on various functional neuroimaging studies. In contrast, those with self-report histories of affective behavior may show very different patterns of transmitter functioning (Raine et al., 1998). Certainly, until neuroimaging techniques are more fully developed, a preliminary way to distinguish “affective” from
“predatory” individuals would be by cardiovascular (i.e., blood pressure and heart rate) recordings during simulated arguments in the laboratory.

Unfortunately, literature on the treatment of different categories of human aggression is limited. The only psychopharmacologic success appears to be in the treatment of affective aggression (Coccaro & Kavoussi, 1997; Kavoussi & Coccaro, 1998). At present, it is possible that only behavioral interventions appear to have any utility in the treatment of predatory behaviors.

7. Limitations

While the categorization of human violence into either predatory or affective categories carries heuristic, as well as utilitarian, advantages, there are some limitations to this approach. By combining types of aggressive behavior that had previously been thought of by animal researchers as distinct, we risk blurring distinctions that may have etiologic or treatment-related implications. For example, a unitary category of predatory behavior might combine violent acts in which violence was incidental to the desired goal (e.g., a burglar kills a homeowner who has discovered him in the act of burglary) and actions in which violence is the sole purpose (e.g., members of racist groups who cruise minority neighborhoods looking for victims to assault and kill). Finally, by espousing a dichotomous classification scheme, we tend to simplify human aggressive acts that often display both predatory and affective elements to different degrees. Nevertheless, for the reasons presented above, the predatory–affective distinction remains a psychobiologically sound method of thinking about an extremely complex set of actions.

8. Conclusion

The use of a single terminology would help to bridge the gap between animal and human research and such an approach would serve a more heuristic function. Results from animal studies may provide the impetus for new directions in research concerning similar forms of human aggression. For example, drug treatments used to suppress affective defense in felines might also be studied in humans.

In conclusion, a more parsimonious definition of aggression can be achieved by utilizing the terms affective and predatory as the basic subtypes of aggression. Such a scheme might allow individuals to be classified differentially according to the ratio of affective to predatory behaviors expressed, thus, providing a new rationale for research, diagnosis, and treatment.

Acknowledgments

This review was supported in part by NIH grant NS 07941-28, the Alcoholic Medical Beverage Research Foundation, the Foundation of the University of Medicine and Dentistry of New Jersey, and the Violence Institute of New Jersey at UMDNJ.
References


