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## CONCEPT ANALYSIS: AGGRESSION

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### Abstract

The concept of aggression is important to nursing because further knowledge of aggression can help generate a better theoretical model to drive more effective intervention and prevention approaches. This paper outlines a conceptual analysis of aggression. First, the different forms of aggression are reviewed, including the clinical classification and the stimulus-based classification. Then the manifestations and measurement of aggression are described. Finally, the causes and consequences of aggression are outlined. It is argued that a better understanding of aggression and the causal factors underlying it are essential for learning how to prevent negative aggression in the future.

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The concept that will be the focus of this paper is “aggression.” Aggression is a noun that is generally defined as an act of aggressive behavior (Concise Oxford English Dictionary, 2002). Throughout this paper, the terms “aggression” and “aggressive behavior” are used interchangeably. Aggressive forms of behavior can be characterized by verbal or physical attack. Aggression may be either appropriate (e.g., self-protective) or, alternatively, it may be destructive to the self and others (Ferris & Grisso, 1996).

When aggression in adults is not a response to a clear threat, it is sometimes considered a sign of mental disorder (Brennan, Mednick, & Hodgins, 2000; Hodgins & Grunau, 1988; Shelton, 2001). In fact, there is comorbidity between aggression and mental illness, with many mental disorders such as schizophrenia and alcoholism also manifesting aggressive behavior (Citrome & Volavka, 2001; Pihl & Peterson, 1993). Aggression may be directed outward against others, causing damage, as in the case of explosive personality disorders. Alternatively, it may be directed inward against oneself, leading to self-damaging acts such as suicide (Raine, 1993, Stoff, Breiling, & Maser, 1997).

Historically, some investigators of human and animal behavior, such as Sigmund Freud and Konrad Lorenz, have argued that aggressive behavior is innate but, alternatively, others have proposed that it is a learnt behavior (Conger, Neppl, Kim, & Scaramella, 2003; Huesmann, Moise-Titus, Podolski, & Eron, 2003). In all likelihood, there are both genetic and environmental contributions towards aggressive behavior (Ghodsian-Carpey & Baker, 1987; Raine, 1993), and some of the biological and environmental antecedents of aggression are reviewed below. Currently, research on the causes of aggression are focused on social learning, modeling, family violence, child abuse, neglect, TV violence, structural and functional brain abnormalities, hormones (e.g., testosterone), and neurotransmitters (e.g., serotonin) (Raine, 2002; Stoff & Cairns, 1996).

The concept of aggression is used in many different contexts. Importantly, it has been applied to animal behavior as well as human behavior. It is used to describe personality and attitudes, as well as to characterize behavior in both children and adults. When aggression is used in the

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medical field, it often linked to a mental disorder, such as epilepsy (Tebartz van Elst, 2002). It also is used in military contexts to characterize actions of a nation (rather than the individual) against another (Nordstrom, 1998; Satterfield & Seligman, 1994), and in sports to denote strongly competitive behavior. Sometimes aggression is used in an everyday context to denote forceful but legitimate actions of others in business (e.g., the “aggressive” salesman).

The significance of aggression for the nursing profession cannot be overemphasized. It links person, environment, health/illness, and health outcome. Specially, physical aggression can result in violence and injury. Nurses in the hospital emergency unit face the consequences of negative aggression every day. Nurses are physically assaulted, threatened, and verbally abused more often than other professionals (Carlsson, Dahlberg, Lutzen, & Nystrom, 2004; Gates, Fitzwater, & Succop, 2003). Nursing interventions early in life have been shown to reduce rates of aggression in teenagers (Olds et al., 1998). If these findings could be replicated, the nursing profession could play a major and significant role in reducing rates of aggressive criminal acts in society. For every 1% of aggressive violent acts perpetrated in society, the cost to the country has previously been estimated at \$1.5 billion (Resis & Roth, 1993) and is clearly greater today. This represents money that could be better spent on providing increasing health care to underserved populations.

The aim of this analysis is to describe the different forms and manifestations of aggression, as well as to describe its causes and consequences in humans (see Table 1 for the contents). A better understanding of aggression and the causal factors underlying it is essential for learning how to prevent negative aggression in the future. This analysis of the concept of aggression is guided by the conceptual framework developed by Walker and Avant (1995). The key elements of this concept analysis are summarized in Table 2. They consist of attributes, antecedents, empirical referents, and consequences. The current literature review was achieved by searching and retrieving the key terms from two major databases: PsycINFO (Earliest to 2004), and MEDLINE (1950 to 2004). The key terms included “aggression,” “aggression behavior,” “antisocial” “delinquency,” “violence,” “social learning,” “social information,” and “biological basis.” Furthermore, although this paper is about the analysis of aggression, this literature review also covers antisocial, delinquent, and criminal behavior as well as violence. These constructs are not synonymous, but because antisocial and delinquent behavior are major risk factors for later aggression and violence (Farrington, 1989), they are included in this review.

## LITERATURE REVIEW

### Different Types of Aggression

As mentioned above, there are different types of aggression. Theoretical perspectives on aggression suggest that typographically and functionally distinct subtypes of aggression exist (Dodge & Schwartz, 1997). It is important to consider the multidimensional nature of aggression because different stimuli combine with different types of physiological and mental processes to create distinct forms of aggression.

Although different classification systems for aggression have been proposed, as seen below, these typologies tend to overlap somewhat, with each system having a slightly different emphasis. The forms of types of aggression that are reviewed consist of the clinical classification, the stimulus-based classification, the instrumental versus hostile classification, and the positive versus negative classification.

**Clinical Classification**—The clinical literature research, heavily influenced by the work of Feshbach (1970) has frequently referred to two forms of aggression (Dodge, Lochman, Harnish, & Bates, 1997; Scarpa & Raine, 1997). The first form is called “affective,” “reactive,”

“defensive,” “impulsive,” or “hot-blooded” aggression. This type of aggression is defined as a violent response to physical or verbal aggression initiated by others that is relatively uncontrolled and emotionally charged. In contrast, the second form of aggression is referred to as “predatory,” “instrumental,” “proactive,” or “cold-blooded” aggression. This type of aggression is characterized as controlled, purposeful aggression lacking in emotion that is used to achieve a desired goal, including the domination and control of others (Dodge, 1991; Meloy, 1988; Raine et al., 2004). Meloy (1988) views aggression in humans as either predominantly affective or predatory. Similarly, Dodge (1991) categorizes childhood aggression as either proactive or reactive, while admitting that very few aggressive acts are purely reactive or proactive in nature. In the *Diagnostic and Statistical Manual—IV* (American Psychiatric Association, 1994) reference is made to Intermittent Explosive Disorder, a form of clinical aggression similar to reactive aggression in which the individual for an intermittent, short period of time loses control and becomes inordinately aggressive.

**Stimulus-based classification:** Internal stimuli and external stimuli are important antecedents of aggression. Moyer (1968) presented a comprehensive review of different forms of aggression and their neural and endocrine regulation. He classified aggressive behavior according to seven stimulus situations that elicited the behavior. These antecedent stimuli are as follows:

- Predatory aggression, stimulated by the presence of a natural object of prey
- Inter-male aggression, stimulated by the presence of a novel male conspecific in a neutral arena
- Fear-induced aggression stimulated by threats and always preceded by escape attempts
- Irritable aggression, stimulated by the presence of any attachable object. The tendency to display irritable aggression is enhanced by any stressor, such as isolation, electrical shock, and food deprivation.
- Territorial aggression, stimulated by the presence of an intruder in the home or territory of a resident
- Maternal aggression, stimulated by a threatening stimulus in the proximity of the mother's young
- Instrumental aggression, stimulated by any of the situations already described, but strengthened by learning

The above classification system emphasizes the context-dependent nature of aggression and the diversity of situations that trigger aggression.

**Instrumental versus hostile aggression:** Feshbach (1970) originally developed this typology, and it has been elaborated upon more recently by Atkins et al. (1993). This influential model separates aggression into instrumental and hostile functions. Instrumental aggression produces some positive reward or advantage (impact) on the aggressor unrelated to the victim's discomfort. The purpose of hostile aggression is to induce injury or pain (negative impact) upon the victim. In this case, there is little or no advantage to the aggressor. This model has been widely studied in community samples of children and adults with varying results (Atkins et al., 1993). One problem with this classification is that the constructs require careful delineation because many aggressive episodes will have components of both instrumental and hostile aggression.

**Positive versus negative aggression:** Generally speaking, aggression is considered to have a negative function that not only elicits disapproval from others, but also is evaluated as destructive and damaging in its consequences. However, Blustein (1996) argues that the term “aggressive” behavior is ambiguous, denoting both positive and negative behaviors. Similarly, it could be called “excessive” or “inappropriate” aggression. Ellis (1976) considered positive aggression to be healthy, productive behavior if it promoted the basic values of survival, protection, happiness, social acceptance, preservation, and intimate relations.

In the context of positive aggression, a certain amount of aggression is thought to be necessary and adaptive throughout childhood and adolescence because it helps build autonomy and identity (Gupta, 1983; Romi & Itskowitz, 1990). Furthermore, a certain degree of aggression or dominance helps to facilitate engagement in cooperative and competitive activities with one's peers. Channeled in the proper direction, human aggression is the force that enables a person to be healthfully self-assertive, dominant, and independent and to achieve mastery of both the environment and the self. Therefore, Jack (1999) believes that positive aggression takes many forms, including self-protection, standing up in the face of negation, pushing for new possibilities, and defending against harm.

With respect to negative aggression, this behavior has been defined as acts that result in personal injury or destruction of property (Bandura, 1973). Alternatively, it also has been defined as attacking behavior that harms another of the same species (Atkins et al., 1993). Negative aggression also is defined as forceful action that is directed towards the goal of harming or injuring another living being (Moyer, 1968). Encroaching on the home or territory of a resident and causing others financial, physical, and emotional damage also is included in negative aggression (Moyer, 1968). Negative aggression is considered unhealthy because it induces heightened emotions that can in the long-term be damaging to the individual.

**Male versus female aggression:** It is commonly recognized that males are more aggressive than females. Although males often engage in physical aggression or “direct” forms of aggression, females are more likely to exhibit what has been termed “relational aggression” or “indirect” forms of aggression, such as exclusion of others from their social group and slander (Crick, 1995; Crick, Grotpeter, & Bigbee, 2002; Hadley, 2003; Moffitt, Caspi, Rutter, & Silva, 2001).

Quinsey, Skilling, Lalumiere, and Craig (2004) found that in children and youth, although both males and females are more likely to engage in aggressive behavior and commit violent crimes between the ages of 14 and 24 years than at other ages, the onset for females tends to be two years earlier on average. Furthermore, there are gender differences in the seriousness of aggression. Males are more likely than females to commit more serious acts of aggression.

Women generally cope with anger and frustration in less violent ways. In a study interviewing 60 women of different ages, ethnicities, and class backgrounds, Jack (1999) concluded that women might mask their aggression through manipulation, silence, and exaggerated sweetness. However, over time, such coping mechanisms, can lead to depression, disconnected relationships, or even numbing behaviors such as overeating, drinking, or drug use.

### Manifestations of Aggression

Aggressive behavior during early childhood is considered a part of the normal developmental process (Greydanus, Pratt, Greydanus, & Hoffman, 1992). Acts of aggression change during a person's life span. When young children lack verbal skills, aggression is predominantly physical. When verbal skills develop, they could be used as peaceful communication, but also for aggressive purposes (Ferris & Grisso, 1996). Outbursts of anger usually peak around 18 to 24 months of age and gradually decrease by five years of age. Tremblay et al. (1999), found

that most children have experienced their onset of physical aggression by the end of their 2nd year. Early aggressive behavior consists of crying, screaming, temper tantrums, biting, kicking, throwing, and breaking objects (Achenbach, 1994; Raine, Reynolds, Venables, Mednick, & Farrington, 1998). At this stage, intention is instrumental. Early childhood aggressive behavior may be in response to parental authority and unrealistic expectations on the part of the parent toward their child. Later as social interactions increase, aggression may be directed towards peers (Greydanus et al., 1992). Later on, such behaviors as teasing, bullying, fighting, irritability, cruelty to animals, and fire-setting occur. During early adolescence, more serious violence develops, including gang fights and use of knives, while in late adolescence use of guns escalates.

Adolescent socialized aggression typically involves gang activities, cooperative stealing, truancy, and other manifestations of participation in a delinquent subculture (Lopez & Emmer, 2002). In adulthood, aggression escalates to include assault, robbery, rape, and homicide. In cases of childhood, adolescent, and adult aggression, one common characteristic of the aggressive episode is autonomic arousal (Raine, 1993). This stimulation of the autonomic nervous system is part of the fight-flight syndrome that prepares the organism for physical action. Furthermore, Raine et al. (2004) found that proactive aggression reflects a manifestation psychopathic characteristics while reactive aggression may result from reality distortion and schizophrenia-spectrum characteristics.

### **The Measurement of Aggression**

Aggression has been measured in a number of different ways. Perhaps the most popular technique has been to use rating scales that are completed by either the mother of the child or the schoolteacher. One well-used example of such a rating scale is the Child Behavior Checklist (Achenbach, 1994). A second frequently used measure of aggression consists of self-report measures where the individual fills out a questionnaire to assess different aggressive attitudes and behaviors. Perhaps the most popular is the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957). Aggression also can be measured by observers. For example, the Overt Aggression Scale (Yudofsky, 1986) measures four different types of ward behavior in psychiatric patients by nurse raters.

Furthermore, aggression can be measured using a subtype scale that can classify different types of aggression. More recently, Raine et al. (2004) found that proactive and reactive aggression can be reliably and validly assessed by a brief self-report measure (the Reactive-Proactive Aggression Questionnaire) with a reading age of eight years. In addition, aggression and aggressive-related measures can be assessed in the justice system by using (1) official files of the police, court, and correctional agencies (Klein, 1987) and (2) self-report measures, for example Self-Reported Delinquency (Elliott et al., 1983), and Psychopathy Checklist Revised (PCL-R), a rating scale designed to measure traits of psychopathic personality disorder (Hare, 1991). PCL-R is the most popular clinical instrument for assessing psychopathic behavior. Finally, aggression may be assessed using clinical projective tests such as the Thematic Apperception Test (Murray, 1957; Wodrich & Thull, 1997).

### **Consequences of Aggression**

There are numerous important consequences of aggression. With respect to positive and instrumental aggression, there are several potentially positive outcomes. It serves to preserve and protect the individual. Furthermore, aggression can be used to increase an individual's dominance in their social environment.

With respect to negative aggression, the consequences are inevitably more negative for both the perpetrator and the victim. Children who are aggressive at school are likely to be rejected

by their peers (Ferris & Grisso, 1996). In adolescents and adults, the damage caused by excessive negative aggression includes physical injury, psychological and emotional trauma, and financial costs. For example, in 1990, victims sustained physical injury in 33% of situations involving robbery and assault (Reiss & Roth, 1993). Of those injured, 38% had to receive hospital treatment for their physical injury. In terms of financial costs, it has been estimated that each attempted rape costs \$54,100, each robbery costs \$19,200, and each assault costs \$16,500 (Reiss & Roth, 1993). Some consequences cannot be estimated in financial terms. Damage to the individual victim includes psychological and emotional trauma, particularly in response to aggressive acts such as rape and domestic violence. The worst consequence of aggression is lethality. In 1990, 1 in every 257 violent victimizations resulted in loss of life.

There also are consequences for the perpetrator of aggression. Although aggression can result in positive gain for the individual, it also can result in financial loss (fines imposed by courts), loss of freedom (i.e., imprisonment), and even loss of life (execution). After imprisonment, it can result in loss of job, divorce, and poverty, which can motivate even further aggressive criminal acts to gain resources.

### Causes of Aggression

Behavioral and social scientists have different theories about aggression. As outlined earlier, Freudians believe that aggression, like sexuality, is an innate drive or instinct in each of us (Stoff et al., 1997). Others theorize that it is not an inborn drive but a response to frustration that every human being experiences almost from birth. Although there are several different ways in which the causes of aggression can be grouped, two broad divisions consist of social and biological explanations.

**Social Causes**—Although there are many social factors involved in aggression, two overarching theories that involve social factors (external stimuli) are briefly outlined.

**Social learning theory:** The basic principle underlying social learning theory is that children learn to be aggressive. Learning is hypothesized to occur both as a result of one's own behavior (enactive learning) and as a result of viewing others behavior' (observation learning) (Huesmann, 1998). An early proponent of this perspective was Bandura (1973). In an important series of experiments, Bandura demonstrated that after watching a model being aggressive to a Bobo doll, young children showed more aggressive behavior in their play. In particular, children were observed to imitate the precise actions of the model, indicating that imitation was the principal way in which children learned to be aggressive.

In addition to imitation, observational learning is another important process by which children learn to be aggressive. It has been repeatedly shown that children who are exposed to violence in the family are more likely to grow up to become violent and aggressive themselves (Herrera & McCloskey, 2003; Litrownik, Newton, Hunter, English, & Everson, 2003). Some children observe their fathers resolving a dispute or solving a problem by beating their wives. They observe that a certain behavior on the part of the model (father beating the mother) is followed by a reward for the model (resolution of conflict or dominance). The child in turn learns to use similar behavior when confronted with a problem situation, using aggression to resolve the problem or gain control just as their father did.

Another example of learning aggressive behavior can be seen in TV violence. Through the media of television and motion pictures, and even the Internet, children as well as adults are being exposed to brutal acts of aggression at historically high rates (Grana et al., 2004; Haridakis, 2002; Huesmann et al., 2003;). The research literature on the long-term effects of media such as TV violence on aggression has demonstrated that for both boys and girls, early exposure to media violence increases the risk for later aggression behavior (Huesmann et al.,

2003). Results also suggest that this relationship is exacerbated by children identifying with aggressive television characters and fantasizing about aggression.

**Social information processing:** The social information processing model of aggression argues that a child's decision to respond aggressively to a particular social stimulus emerges from a systematized series of sequential mental operations (Dodge & Schwartz, 1997). Furthermore, from a social perspective, aggression is subtyped into reactive aggression and proactive aggression, and for each subtype, a separate theory is put forward to explain the origin of the two types.

First, the frustration-aggression model (Lange, 1971; Shinar, 1998) suggests that reactive aggression is an angry retaliatory response to a perceived provocation and underlying state of frustration. Frustration (defined as the blocking or thwarting of any on-going goal-directed activity) induces an aggressive drive that motivates aggressive behavior. Over time, this aggressive drive builds up. Once frustration is encountered, and given that a certain level of frustration has built up, the aggressive drive is automatically triggered and must be given expression before the drive can be reduced.

Second, as described above, social learning theory (Bandura, 1973) offers a comprehensive and incisive analysis of aggression. In the context of Dodge's (1991) theory, it is argued that proactive aggression is acquired and maintained through positive reinforcement. That is, if an aggressive response by one child to another child is followed by a positive reward to the aggressor (e.g., the bullying child obtains candy from the other child), then the frequency of that behavior will increase because it has been reinforced.

**Biological Causes**—Research is beginning to indicate that biological processes (internal stimuli) may serve a role in predisposing to aggression. Five specific processes are selected for brief description: (1) brain dysfunction, (2) testosterone, (3) serotonin, (4) birth complications, and (5) nutrition deficiency.

**Brain dysfunction:** Aggressive criminals have been found to have poor brain functioning. One source of evidence comes from neuropsychological tests, which have indicated poor functioning of the frontal and temporal regions of the brain in violent offenders (Henry & Moffitt, 1997; Moffitt, 1990, Raine, 2002). In addition, EEG studies have shown that aggressive prisoners are more likely to show EEG abnormalities; in particular, aggressive psychopaths are more likely to show excessive slow-wave EEG (Stoff et al., 1996). A third source of evidence comes from brain imaging studies. Aggressive prisoners have been shown to have reduced glucose metabolism in the prefrontal region of the brain (Raine, Buchsbaum, & LaCasse, 1997), while individuals with antisocial personality disorder show an 11% reduction in the volume of prefrontal gray matter compared to normal and psychiatric control groups (Raine, Lencz, Bihle, LaCasse, & Colletti, 2000).

The reason why brain dysfunction predisposes to aggression may be because the prefrontal region of the brain normally acts to control and regulate the emotional reactions generated by deeper, limbic brain structures like the amygdala. If the prefrontal region of the brain is functioning poorly, it will be less able to keep these aggressive impulses in check, resulting in an increased likelihood of impulsive, aggressive acts.

**Testosterone:** Sex hormones appear to play a role in shaping aggressive behavior. Aggressive, violent offenders have been found to have significantly higher levels of testosterone than controls (Archer, 1991). Female criminals also have been found to be much more likely to commit crimes around the menstrual phase of their cycle when progesterone is low, while aggressivity is reduced around the time of ovulation when estrogen and progesterone levels

are high (Carlson, 1998). Weight-lifters who take anabolic steroids become more aggressive and hostile, and normal men who are given testosterone become more irritable and hostile (Carlson, 1998).

**Serotonin:** There has been a recent increase in research on neuro-transmitters and their relationship to aggression in animals and humans. Although there is emerging data implicating the role of a variety of neurotransmitters in mediating impulsive aggressive behavior in humans, most data have suggested a particularly strong role for serotonin (Ferris & Grisso, 1996). Both animal and human research has shown that aggressors have lower levels of the neurotransmitter serotonin (Virkkunen, Goldman, Nielsen, & Linnoila, 1995). Nevertheless, the links between brain chemistry and aggression in humans are complex, because the environment plays a key role in regulating neurochemistry. Social dominance influences serotonin levels in monkeys, and alcohol consumption also plays a significant role (Carlson, 1998).

**Birth complications:** Birth complications have been repeatedly found to be associated with later increased aggressive behavior in childhood (Cocchi et al., 1984; Pasamanick, Rodgers, & Lilienfield, 1956; Piquero & Tibbetts, 1999) and criminal activity in adults (Hodgins, Kratzer, & McNeil, 2001; Raine, Brennan, & Mednick, 1994, 1997). Interestingly, birth complications alone have rarely been found to have a direct link with aggression and violence. Instead, aggressive behavior is especially likely to develop when birth complications combine with psychosocial risk factors such as disadvantaged family environment, and poor parenting (Arsenault, Tremblay, Boulerice, & Saucier, 2002; Hodgins, Kratzer, & McNeil, 2001; Piquero & Tibbetts, 1999; Raine & Liu, 1998). As one example, Raine et al. (1994) prospectively measured birth complications in a sample of 4,269 males from Copenhagen, Denmark, and also maternal rejection of the child at one year of age. Although there were no main effects for these risk factors, individuals with both birth complications and maternal rejection were three times more likely to become violent criminal offenders by 18 years of age. This interaction effect was particularly linked to violent crime occurring before age 18 (Raine, Brennan, & Mednick, 1997). Regarding the nature of the link between birth complications and aggression, specific birth complications (e.g., anoxia, forceps delivery etc.) are believed to result in central nervous system damage, which in turn impairs brain function, which then predisposes to aggression (Liu, 2004a).

**Nutrition deficiency:** Research on nutrition deficiency and aggressive behavior is beginning to get attention (Fishbein & Pease, 1994; Rutter, Giller, & Hagell, 1998). Factors include food additives, hypoglycemia, cholesterol, and deficiencies in protein, iron, and zinc (Breakey, 1997; Fishbein & Pease, 1994; Fishbein, 2001; Raine, 1993). In animals, male rats fed a low-protein diet in early postnatal life have been reported to show increased aggressive behavior in pair interactions (Tikal, Benesova, & Frankova, 1976). In humans, the male offspring of pregnant women starved during the German blockade of food to Holland at the end of World War II had 2.5 times the rates of antisocial personality disorder in adulthood compared to controls (Neugebauer, Hoek, & Susser, 1999). In addition, several studies reported that iron deficiency is directly associated with aggressive behavior and conduct disorder (Rosen et al., 1985; Werbach, 1992). Similarly, zinc deficiency has been found to be linked with aggressive behavior in both animals (Halas, Reynolds, & Sandstead, 1977) and humans (Brophy, 1986). It is believed that early malnutrition negatively impacts brain growth and development, and that brain impairments predispose individuals to antisocial and violent behavior by impacting cognitive functions (Liu, Raine, Venables, & Mednick, 2004).



## KEY ELEMENTS OF THE CONCEPT ANALYSIS

### Defining Attributes

Walker and Avant (1995) identify defining attributes as a cluster of attributes most frequently associated with the concept, which helps differentiate the concept from other similar or related to it. The defining attributes of aggression explicit in the literature include heightened emotion (crying, angry, loss of control), encroachment (intrude), attack (provocative and reactive) and forceful action (see Table 2).

### Antecedents

Walker and Avant (1995) stated that antecedents are events or incidents that must occur prior to the occurrence of the concept and are factors that precede or cause the concept. The antecedents discussed in the literature are summarized into external stimuli, internal stimuli, the living being, and the recipient. These four elements coexist and interact in the paradigm of antecedents that occur prior to the experience of aggression. External stimuli represent social and environmental factors that influence and drive individuals (living beings) to aggressive behavior. Domestic and media violence are examples of external stimuli. Internal stimuli include, but are not limited to, brain function, hormones such as testosterone, neurotransmitters such as serotonin, and other factors (e.g., birth history). The living being not only brings internal stimuli to the situation, but also regulates and interprets external stimuli (social learning, cognitive processes) that act on the living being. While internal stimuli may be related to aggression, it may be essentially a predisposition only, requiring other environmental, psychological, and social factors to enhance or diminish this biological predisposition (Raine & Liu, 1998). The recipient on one hand, could be considered an external stimulus, and, on the other hand, could be considered a victim (see Table 2).

### Consequences

Consequences are considered events or incidents that occur as result of the occurrence of the concept (Walker & Avent, 1995). The consequences of aggression can be described as those conditions that are preceded by the concept and are the outcome of the concept. These include preservation, protection, domination, rejection, damage (physical injury, psychological and emotional trauma, and financial loss), and loss of freedom (imprisonment) (see Table 2).

### Empirical Referents

Walker and Avant (1995) identify empirical referents as classes or categories to measure this concept or determine its existence in the real world. Furthermore, the empirical referents are the criteria used to measure and evaluate the presence or absence of the defining attributes (Meleis, 1997). Referents are observable, measurable, and testable and are used to assess the concept. The empirical referents discussed in the literature include autonomic arousal, temper tantrums, verbal and physical behaviors, fighting, and destruction (see Table 2).

### Synonymous Term: Violence

Although aggression and violence appear to be synonymous, violence connotes greater intensity and destruction. Violence is more commonly associated with descriptions of human behavior rather than animal behavior. Violence can be defined as excessive negative aggression. It has also been defined by Reiss and Roth (1993) as “behaviors by individuals that intentionally threaten, attempt, or inflict physical harm on others” (p. 2). In this context, aggression and violence can be differentiated. Aggression is clearly included in the definition of violence, but some forms of aggression do not threaten or inflict harm on others, but instead are aimed to protect and preserve the individual.

## CONCLUSION

Aggression, like all types of behavior, involves biological forces, for example, neurobiological, genetic, hormonal, perinatal, traumatic, nutritional, and brain chemistry processes. However, biological factors alone do not determine the development of aggression. The social environment of the individual is a powerful regulator of neurobiological processes and behavior. In other words, aggressive behavior is the outcome of the regulation of external and internal stimuli by living beings. Furthermore, individual differences in characteristic levels of aggression can be attributed to learning. Thus, it is important to understand the multidimensional nature of aggression.

In this context, aggression is important to nursing in a number of ways. As referred to in the opening of this article, nurses come into contact with the consequences of aggression every day. Having an understanding of its antecedents, and also its consequences, can help nurses deal with aggression. Of increasing importance are the concepts of physical and sexual child abuse, domestic violence, battered women, and violent encounters in psychiatric care and the workforce (Bohn, 2003; Campbell & Soeken, 1999; Carlsson, Dahlberg, Lutzen, & Nystrom, 2004; Little & Kantor, 2002; McFarlane et al., 2002; Parker, Steeves, Anderson, & Moran, 2004; Yorker, 2003). Nurses are increasingly likely to come into contact with the consequences of aggression, and having an understanding of these consequences and having an ability to detect them are critically important.

A further way in which the concept of aggression is important to nursing is that further knowledge of aggression by the nursing profession can help generate interventions based on theoretical models (Liu, 2004b). Because some of the social and biological causal factors of aggression occur early in life, it will be possible for the nursing profession to develop interventions that tackle both sets of causes (Liu & Raine, 2000). For example, the study conducted by Olds et al. (1998) has shown that prenatal and early childhood home visitations by nurses can reduce reported negative aggressive behavior (Olds et al., 1998). Emerson and Shelton (2001) stressed the importance of using a psychoeducational approach (e.g., using creative arts) to assist adolescent female offenders in building coping skills to decrease cycles of domestic violence.

Aggression requires considerable further study, because at the moment, it is a little understood phenomenon. One important question that we have few answers to concerns how social risk factors for aggression interact with biological risk factors. Of critical importance is obtaining greater understanding of family violence. Abuse of both wives and children has major physical and physiological impacts that impair health functioning in many dimensions. By developing a stronger knowledge base of aggression, it will be possible to develop interventions that reduce aggression.

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**TABLE 1**

## The Contents of the Concept Analysis: Aggression

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Different forms of aggression
Clinical classification (Dodge, 1991; Meloy, 1988; Raine et al., 2004)
Affective, reactive, defensive, impulsive, hot-blooded—uncontrolled
Predatory, proactive, instrumental, attack, cold-blooded—controlled
Stimulus-based classification (Moyer, 1968)
Predatory aggression
Fear-induced aggression
Irritable-induced aggression
Territorial aggression
Maternal aggression
Instrumental aggression
Other classifications
Instrumental vs. hostile aggression (Feshbach, 1970)
Positive vs. negative aggression
Male vs. female aggression (Crick, 1995; Jack, 1999; Moffitt et al., 2001)
Measurements of aggression
Child behavior checklist (Achenbach, 1994)
Buss-Durkee Hostility Inventory (Buss & Durkee, 1957)
Overt Aggression Scale (Yudofsky, 1986)
Thematic Apperception Test (Murray, 1957)
Proactive and reactive aggression questionnaire (Raine et al., 2004)
Files of the police, court and correctional agencies
Self-Reported Delinquency (Elliott et al., 1983)
Psychopathy Checklist Revised (Hare, 1991)
Causes of aggression
Social factors
Social learning theory
Social information procession
Biological factors
Brain dysfunction
Testosterone
Serotonin
Birth complication
Nutrition Deficiency

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**TABLE 2**

## The Key Elements of the Concept Analysis: Aggression

Antecedents	Defining attributes	Empirical referents	Consequences
Internal stimuli	Heightened emotion	Autonomic arousal	Preservation
External stimuli	Encroachment	Verbal & physical impact	Protection
Living being	Attack	Temper tantrums	Domination
Recipient	Forceful action	Fighting	Rejection
		Destruction	Damage
			Loss of freedoms