

Aggression, and some related psychological constructs (Anger, Hostility, and Impulsivity). Some comments from a research project.

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ABSTRACT

RAMIREZ, J.M., and J.M. Andreu. *Aggression, and some other psychological constructs (Anger, Hostility, and Impulsivity). Some comments from a research project.* NEUROSCI BIOBEHAV REV 21(1) XXX-XXX, 2005 - The purpose of the present study was: first, to offer a few theoretical considerations on the concept of human aggression and its main types; and second, to analyse the relationship between those types of aggression and other related psychological constructs, such as anger, hostility, and impulsivity, summarizing the main empirical results of our research in progress. In order to assess their eventual correlations, several self-report techniques were compared: a) AQ, used to measure several kinds of aggression, anger, and hostility; b) CAMA, a questionnaire already used in a variety of cultures, for measuring attitudes toward interpersonal aggression in different instrumental and hostile situations; c) ASQ, an instrument for measuring experienced anger and its expression in assertive or aggressive ways; and d) BIS, used to prove three impulsiveness sub-traits: motor, attentional, and non-planning impulsiveness. The different definitions of aggression may be grouped according to whether the primary goal is distress or harm, focusing primarily on the objective infliction of harm, or on the subjective intention of harming. Most classifications in the literature show two kinds of aggression, even if different names are used: *Hostile Aggression* (among other names it is also known as 'reactive, impulsive, or affective') is an act primarily oriented to hurt another individual; and *Instrumental Aggression* (also known as 'proactive, premeditated, or predatory') is a means or tool for solving problems or for obtaining a variety of objectives. As predicted, there was a positive correlation between experience and expression of anger. Anger involved physiological arousal and prepared for aggression. Anger and impulsiveness were also positively correlated with hostile aggression, but not with instrumental aggression. In the case of impulsiveness, non-planning impulsiveness was positively correlated with some situations related to hostile aggression, such as emotional agitation or lack of communication, but not with instrumental one.

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Finally, hostility positively correlated with anger and different kinds of aggression, but not its degree of justification. In sum, aggression can be reflected in the different personality constructs, measured by self-reports.

Keywords: Aggression, Anger, Hostility, Impulsivity, Hostile Aggression, Instrumental Aggression, Experience and expression of Anger

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1. Introduction

Since the design of experiments and methodologies employed in aggression research is strongly influenced by the definitions adopted, it is important to start with its description and that of other aggression-related constructs, because a good profile of several personality traits may help to a better and more comprehensive understanding of this behavior. However the reader should not expect to find here a complete review of what has been said on the topic included in the title. It would be too huge an undertaking for a brief review of this nature. Instead this paper will first present a brief theoretical consideration of the concepts of aggression and some other related psychological constructs. In addition a short summary will be made of some empirical findings of a program of research that, for over two decades, has been applying some self-report techniques aimed at a better understanding of human aggression, in the belief that it is associated to a distinctive personality style, as it has been quite recently suggested (Houston & Stanford, 2005).

Our purpose thus is to present some information of how the different forms of human aggression may be inter-related and related to psychological constructs, such as anger, hostility, and impulsivity, on the understanding that a useful framework would be of fundamental importance for improving research on aggression and also important for the diagnosis, prevention, and treatment of its abnormalities.

We are aware of the advantages of an interdisciplinary approach to aggression research (including consideration of biology, behavior, and cognition), and the need for its study in diverse populations. However, if we want to avoid multiple possible confusing variables, it seems prudent to leave aside clinical and marginal populations (e.g., psychiatric patients or prison inmates) initially, and start instead with 'normal' subjects, with a relatively homogenous environment and no significant differences in age and education (i.e., undergraduate students). This is also a precautionary measure to avoid generalizing relationships of personality traits and other criterion found in normal populations to non-normal populations. In addition to this consideration, there are multiple possible measures (including psychological, neuropsychological, electrophysiological, psychopathological), but in our present paper we will focus on personality constructs, applying only self-reports, because they were the ones directly approached in our research, which is still in progress. Needless to say, therefore, that far from being finished, the data already known is neither completed nor provides unequivocal answers to many of the questions. Many lacunas are yet to be uncovered in the future.

2. Concept and Kinds of Aggression

2.1. Concept of Aggression

Before distinguishing between forms of aggression, we must first be clear about what we mean by aggression, because if other researchers want to replicate a

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research, at least there has to be a previous agreement about a precise *working notion*: what we are looking for, which would allow for clear operational definitions thus.

In spite of the enormous literature on the topic, and the continuous effort shown by many scholars dedicated to the scientific study of aggression, there is still considerable disagreement about its precise meaning and causes, with no singular or even preferred definition. Far from being a univocal term, aggression is often ill defined, used with ambiguity and with a surplus of meanings. This multitude of different conceptualizations is one of the main problems in the literature on aggression. Part of the task of understanding this concept, therefore, would be in clarifying its meaning.

Which definition should be chosen? Traditionally, it has been stressed the intention to harm another living being (Baron & Richardson, 1994), and not simply the delivery of harm (a manifest response "aimed at the injury of a target" (Berkowitz, 1989; Dollard et al., 1939; S. Feshbach, 1964). This intention seems clear in some kinds of aggression, but in others the perpetrators of the harm might be able to deny any intent to cause harm; for example, aggression would simply be the infliction of harm on others, in a behaviorist approach ("that delivers noxious stimuli to another organism" (Buss, 1961), or, as we have described elsewhere, "the *delivery* of any form of definite and observable *harm-giving* behavior towards any target", without mentioning the eventual intention of the actor (Ramírez, 1996, 1998, 2000; Ramírez & Rañada, 1996; Reynolds & Andreu, 1999). Spielberger (1983) does not include the intention either, when he says that the concept of aggression "implies destructive or punitive behavior directed towards other persons or objects".

A recent analysis (Anderson & Bushman, 2002) tried to clarify these different definitions, distinguishing between proximate and ultimate goals. Intention to harm is viewed as a necessary feature in any kind of aggression, but only as a proximate goal (as in purely hostile aggression models). At the level of ultimate goal, though, there is a clear difference between different types of aggression. Thus, both robbery and physical assault are acts of aggression because both include intention to harm the victim at a proximate level; however. They typically differ in ultimate goals, with robbery serving primarily profit-based goals and assault serving primarily harm-based goals. In short, this distinction allows the discussion of the commonalities in different kinds of aggression and the distinctions between them, while including aggression with mixed motives.

2.2. Kinds of Aggression

But difficulties inherent in defining aggression appear simple in comparison to the difficulty with establishing a classification of such an ambiguous construct. Far from being a term describing a singular dimension, 'aggression' consists of several phenomena which may be similar in appearance but have separate genetic and neural control mechanisms, show diverse phenomenological manifestations, have different functions and antecedents, and are instigated by different external circumstances.

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Early work by Arnold Buss (1961), thinking in terms of the way of doing it (how) distinguished three, not quite independent, but rather overlapping, dimensions (e.g., Yudofsky et al., 1983), on which one might categorize types of aggression: physical-verbal, active-passive, and direct-indirect. The *physical-verbal* dimension distinguishes between whether one uses physical means or words to harm another person (Berkowitz, 1994; Björkqvist, 1994). The *active-passive* dimension refers to the extent to which the aggressor actively engages in a behavior aimed at harming someone, with passive aggression referring to causing harm by not doing something.

The *direct-indirect* dimension is also relevant (Björkqvist, 1994; Björkqvist et al., 1992; Buss 1961, 1971). *Direct* aggression involves face-to-face confrontation between the aggressor and the target. It is defined as any behavior aimed at the goal of harming another living being (Baron & Richardson, 1994). Consistent with Buss' original formulation, this form of aggression may be either verbal or physical; for example, direct aggression might involve screaming at another person or hitting that person. *Indirect* aggression is defined as any behavior aimed at the goal of harming another living being that is delivered circuitously through another person or object, even if it must nevertheless be intended to harm someone (Richardson & Green, 2003). It is a mode of aggression that avoids counterattack. It may involve both '*round about*' aggression (the hated person is not attacked directly, but by devious means) and '*undirected*' aggression (wherein there is discharge of negative affect against no one in particular) (Buss 1961). Norma Feshbach (1969) defined it as "responses which result in pain to a stimulus person through rejecting and excluding him", including such actions as ignoring or denying requests. It also may be either physical or verbal; for example, indirect aggression might involve causing harm to someone's property, or talking behind someone's back.

Other researchers have also considered *non-direct* forms of aggression that cause harm by disrupting relationships (see a recent monographic issue on nondirect aggression, edited by Richardson and Hammock (2003). Crick and Grotpeter (1995) defined relational aggression as "harming others through purposeful manipulation and damage of their peer relationships", including behaviors such as exclusion and telling the target they won't be friends anymore. These forms of relationally oriented aggression include both direct and indirect behaviors. For example, telling a target they won't be friends is a direct, verbal approach, and denying a request is similarly direct. This form of aggression also involves primarily verbal aggression that causes harm by disrupting relationships.

A recent study of ours proposed a new typological construct of aggression, elaborated through a structural equation modelling, and assessed its statistical validity. This theoretical classification of aggression and the empirical data showed an adjusted goodness of fit index =0.102, providing empirical support for a structural typology of the aggression composed by three dimensions: biological, social, and situational. Physical and verbal aggressions were classified in a construct named 'biological dimension of aggression'; indirect and critical aggression were classified in a construct called 'social dimension of

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aggression'; and, finally, reactive and instrumental aggression were included in a construct named 'situational dimension of aggression' (Ramirez & Andreu, 2003).

Many other proposed classifications of human aggression, even if using different terms, consistently follow a common dichotomy, in terms of purpose (why) or goal (inferred or otherwise), depending on whether the primary *intent* is distress or harm, show qualitatively different phenomenology and neurophysiology, and appear clearly distinct at the factorial level. For instance, Rosenzweig (1941) delineated a specific typology of aggressive responses to frustration: a *positive/constructive* profile (need-persistence), adaptive and prosocial, and a *negative/destructive* one (ego-defense), maladaptive and antisocial. Recent studies (Lansford et al., 2002; Poulin, Dishion & Boivin, 2002) suggest something similar. And Loeber and Schmaling (1985) applied practically the same criteria to antisocial conduct, proposing *overt* and *covert*.

Some authors (Crick & Dodge, 1996; Dodge & Coie, 1987; Pitkänen/Pulkkinen, 1969) distinguish between *proactive* and *reactive* aggression, whereas others (Aronson, 1992; Bandura, 1973; S. Feshbach, 1964; Hartup, 1974; Hinde, 1970; Kingsbury et al., 1997) prefer to talk about *instrumental* and *hostile* aggression. Barratt and his colleagues (Barratt and Slaughter, 1998; Houston et al., 2003) prefer to call them *impulsive* and *premeditated* aggression. And among psychiatrists (f.ex. Vitiello et al., 1990) it is usual to talk about *predatory* and *affective* aggression. Other colleagues (Reine et al., 1998; Weinshenken and Siegel, 2002) have also proposed to extend to humans another bimodal scheme classification originated by ethological observations in animals (Flynn, 1976; Ramirez, 1981): *affective defense* and *predatory attack*. However, its application can be difficult in our species since both these components of aggression may appear together (Ramírez and Andreu, 2003).

The assessment of the validity of these two constructs by factor analysis shows good internal consistency ($\alpha=.73$). A cluster analysis confirmed this predicted dichotomy: they are independent, existing in varying degrees, and with qualitatively different phenomenology and neurobiology, and appearing clearly distinct at the factorial level (see: Barratt et al., 1999; Dodge and Coie, 1987; Vitiello et al., 1990).

Summarizing, aggressive behavior has traditionally been classified into two distinct subtypes. These independent constructs, which we refer to as *hostile* and *instrumental* aggression (Bushman and Anderson, 2001), consistently emerge in varying degrees among 'normal' persons. Their more specific characteristics are the following:

On one hand, the *hostile-impulsive-uncontrolled-unplanned-reactive-hot blooded-overt-defensive-affective-negative/destructive* type may be defined as an act that is primarily intended, as ultimate motive, to harm another individual. This kind of aggression has historically been conceived as being impulsive, thoughtless or thought confusion (Barratt, 1999), emotionally charged (driven by anger and characterized by loss of behavioural control), and occurring as a reaction to some perceived provocation. Psychologically, it is associated with

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disruptive behavior, hostile attribution biases, intention-cue detection deficits in interpretation, internalising problems, such as depression or somatization, and victimization (Dodge & Coie, 1987). Physiologically, it is characterized by a marked sympathetic over-arousal. Some cognitive and neurobiological deficits have been repeatedly associated with this type of person, being more likely to have lower IQ (Vitiello et al, 1990) as well as poorer verbal skills, lower P300 amplitude (Barratt et al, 1997), impairment of prefrontal function (Fuster, 1997; Raine, et al, 1998), and lower levels of CSF 5HIAA (Linnoila, Virkkunen et al., 1983).

On the other hand, the *instrumental-premeditated-controlled-planned-proactive-cold blooded-hidden-offensive-predatory-positive/constructive* type is conceived as a premeditated mean or tool for solving problems or for obtaining a variety of objectives other than harming the victim, such as some reward, profit, or advantage for the aggressor (power, money, control and domination, gratification with sex or drugs...). It is purposeful and goal-oriented, thus, requiring neither provocation nor anger (Berkowitz, 1993). Psychologically, it is associated with a 'positive' evaluation of aggression and social gain and dominance: leadership, socialization, reciprocal relationship and friendship with other proactive persons, aggressive models... Physiologically it is marked by under-arousal. In contrast to hostile aggression, the instrumental one exhibits relatively normal psychophysiological and neuropsychological variables, with an intact control system and average IQ, similar to the ones of non-violent controls (Barratt et al, 1997a; Stanford et al., 2003), being relatively normal their prefrontal function (Reine et al., 1998) and P300 amplitude (Barratt et al, 1997b) too; they "are not thought to be different from 'normal' people" (Linnoila et al., 1983). Their scores on personality measures, however, are high (Stanford et al., 2003), as we will mention later.

3. Aggression-related psychological correlates

Although we may base the measure on deal-conceptual definitions of instrumental and hostile aggression, what is being measured is not entirely defined, because we still know relatively little about the nature of those forms of aggression. In order to understand better their measures and concepts, we examined the relationship of several aggression-related variables, which represent some eventual psychological components of aggression: affective feelings (*anger*), cognition and temperament (*impulsivity, hostility*), and obviously overt behavior (*aggression*, in its strictest sense). Since the previous pages, and even this whole NBR special issue, are focused on aggression, here we will only mention that, in order to clarify the meaning of the other components, instead of analyzing aggressive behavior directly, self-reports about aggression and its justification have been used, following the rationale expressed in the next section. This section thus will be focused on the other aggression-related constructs.

3.1. Anger

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Understanding the role of emotions in human aggression may be helpful in illuminating its developmental origins and outcomes. Most investigations have proceeded independently of research on emotions, and this seems unfortunate. Anger refers to feelings and attitudes, and represents the emotional or affective component of aggressive behavior, or at least of some kinds of it.

State anger is defined as a psychobiological, subjective experience that, over time and across situations, “usually refers to an emotional state that involves displeasure and consists of subjective feelings that vary in intensity, from mild irritation or annoyance to intense fury and rage” (Spielberger, et al., 1983, 1995; Van Goozen et al., 1994). This internal state is embedded in a specific situational context, assuming that it would fluctuate over time as a function of perceived affronts injustice, or frustration (Ramírez et al., 2001a). Anger would escalate if the source is seen as being intentional, preventable, unjustified, and blamed, and when values are compromised, promises and expectations are broken, rules violated, personal freedom and rights abridged. It is typically accompanied by autonomic nervous system arousal such as increases in heart rate and perspiration, cognitive distortions and deficiencies, and socially constructed and reinforced scripts (Ramírez et al., 2001b; Sukhodolsky et al., 1995).

Trait anger may be considered to be a general temperament of low threshold reactivity in which angry feelings are experienced in response to a very wide variety of relatively innocuous triggers (such as a short delay on a cashier's line, a slightly late mail delivery by the postal letter carrier, or noticing that a student has made unexpected spelling errors), or a more narrow pattern of reactivity to specific classes of stimuli for the person such as competition, rejection, or perceived unfairness. Anger proneness may be seen as a personality trait or characteristic conceived in terms of individual differences in the frequency over time to appraising emotional situations in an angry way (anger experience), as well as to angry responding (readiness to act angrily) (Deffenbacher, 1992; Ramírez, et al., 2001a, 2001b, 2002, 2004; Van Goozen et al., 1994).

Its corresponding **action** readiness mode is that of correcting the harm received, either in a constructive way (assertion) or in a destructive way (aggression).

3.2. Hostility

Hostility is a negative evaluation of persons and things (Buss, 1961), often accompanied by a clear desire to do harm or to aggred them (Kaufmann, 1970). Plutchik (1980) considered it as a negative attitude that mixes anger and disgust, and it is accompanied by feelings of indignation, disgust, contempt and resentment towards others; in occasions it can even become bitterness and violence. This cluster of negative feelings towards others, known as ‘hostile attribution’, is its subjective component (Barefoot, 1992), being reflected in a disfavorable judgement on them, perceived as antagonistic and threatening (Berkowitz, 1996). According to him, hostility is expressed when we say we don't like somebody, specially if we wish him ill. A hostile person is somebody

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that usually does negative evaluations of and towards others, showing an overall dislike and contempt for others (Spielberger et al., 1983).

This attitude of resentment and suspicion can be reflected in verbal and motor responses, such as the aggressive ones (Buss & Perry, 1992). Others have used the term hostility to describe the broad construct involving affect, cognition and behavior, but this term has a more specific meaning involving cognitive factors (Miller et al., 1996). The cognitive phenomenon of hostility consists of negative beliefs about and attitudes toward others, including cynicism, mistrust, and denigration. Cynicism refers to the belief that others are motivated by selfish concerns, and mistrust is the often co-occurring expectation that others are likely to be provoking and hurtful. When these cognitive factors are considered together, hostility can be seen as a general trait connoting "a devaluation of the worth and motives of others, an expectation that others are likely sources of wrongdoing, a relational view of being in opposition toward others, and a desire to inflict harm or see others harmed" (Smith, 1994).

Bendig (1962) reported a factor called *covert hostility*, consisting mainly of irritable acts, and *overt hostility*, consisting mainly of assault and verbal aggression. Another distinction offered more recently (Miller et al., 1996) is between the experience and expression of hostility. Experiential hostility primarily refers to subjective factors, notably the affective processes of anger and related emotions and the cognitive processes comprising hostility (e.g., suspicion and cynicism). In contrast, expressive or behavioral hostility refers to overt verbal or physical aggressiveness, or both.

Psychologically, hostility has a close relationship with irritability, and aggression. Consequently, it is necessary to clarify in some way the complex relationship between anger, hostility and aggression. Anger, the easiest concept of the three, has been described in the previous pages. Hostility, on the contrary, implies an attitude that usually is accompanied by feelings of anger. Both show similar physiological effects on the autonomic and somatic nervous systems, and in both there is a predisposition towards aggressive behaviors mainly directed at the destruction of objects, insults, or at the infliction of some harm. If anger and hostility refer to feelings and attitudes, aggression implies a further step, in the sense that it includes the appearance of behaviors that may be destructive, harmful or punitive when directed to other people or objects.

3.3. Impulsivity

Impulsivity is a multidimensional concept that involves the tendency to act quickly and without reflection, having something to do with restraining one's behavior, handling of different emotions, rapid processing of information, novelty seeking, and ability to delay gratification. The balance of countervailing forces determines the resulting behavior. It does not seem to depend on an impaired critical judgment, but on the loss of control over one's cravings, and has been described as a process over and above particular drives. Psychologists view it as a tendency to act on the spur of the moment, neither thinking, nor planning, nor considering potential risks and alternative modes of action (Plutchik & van Praag, 1995). Murray (1938) described it as the tendency

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to respond quickly to a given stimulus and without enough reflection about consequences (Buss & Plomin 1975). The impulsive is a do-er, not a thinker (Barratt, 1972). Douglas (1972) related it to inability to sustain attention, while Lorr and Wunderlich (1985), stresses two major bipolar components: a) resisting urges vs. giving in to urges; and b) responding immediately to a stimulus vs. planning before making a move.

Psychiatrists consider impulsivity in a broader way, as a tendency to perform acts that are harmful to self or others (see DSM-IV, 1994). From this prospective, it would be an aspect of behavioral disorders of various kinds: kleptomania, pyromania, addictions, perversions, some sexual disorders, bulimia, suicidal threats, self-mutilating behavior. It has been recognized as a general process that underlies some socially important problems such as drug abuse, aggressive behavior, and suicide (Horesh et al., 1997; Ripke, 2005). This explains why it has indeed become a central concept for the criminologists' understanding of violence. It is also used as a diagnostic criterion for impulse-control disorders and personality disorders in psychiatry.

The first step towards a more useful construct of impulsivity is to differentiate between an impulsive **act** and an underlying psychological process — impulsivity, understood as a stable **trait** personality feature related to the control of thoughts and behaviours. The usefulness of this distinction may be shown by the following example. In a choice between a small immediate reward and a larger more delayed reward, a subject may find waiting for the large reward quite unbearable. The consequent preference for the small immediate reward is called impulsive, and in this case the underlying reason is true impulsivity, an inability to wait. On the other hand, consider a subject who cannot discriminate between different reward amounts and simply chooses the more immediate one. In this case the behavior is impulsive, but the underlying mechanism is an inability to discriminate reward amounts, or to wait for a larger reward.

The second step is the recognition of **different types** of impulsivity. Operational definitions have delineated multiple forms (e.g., cognitive vs. behavioral), which, while distinct, often coexist. There are a wide range of models and, according to Barratt and Plomin (1983); there is some truth in all of them. Ainslie (1975) described three models of impulsive behavior: People obeying impulses may ignore the consequences of their behavior; know the consequences but obey a 'lower' principle; or know the consequences but value them in a distorted way. We may call the last two processes 'true' impulsivity, although acknowledging that other processes (e.g., ignorance, reward sensitivity, attention) may also result in impulsive behavior. White et al. (1994) analyzed different measures of impulsivity and found that they were grouped in two distinct axes, a 'behavioral' impulsivity that strongly correlated with delinquency, and a 'cognitive' impulsivity negatively correlated with IQ.

The BIS, first used along with measures of anxiety in psychophysiological and psychomotor performance studies (Barratt, 1959, 1963), has been revised extensively to achieve two major goals: 1) its early item analyses had as a goal to identify a set of 'impulsiveness' items orthogonal to a set of 'anxiety' items as measured by the Taylor Manifest Anxiety Scale (MAS) (1953) or the Cattell

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Anxiety Scale (1957); it involved laboratory research directed at finding different biological and behavioral correlates of impulsiveness and anxiety item pools; and 2) a later goal was to define impulsiveness within the structure of broader structure of personality traits, like Eysencks' (1977, 1985) analysing the correlation of Extraversion and Psychoticism dimensions (O'Boyle & Barratt, 1993), or Zuckerman's dimension (1979), especially the disinhibition subfactor, that was correlated significantly with the BIS (Barratt, 1965, 1972, 1994a).

In BIS-10 three different impulsivity subtraits were distinguished: a) an ideomotor trait, defined as 'acting without thinking', 'on the spur of the moment', with lack of thoughtfulness, and very similar to what the Eysencks had identified as impulsiveness narrow; b) a non-planning impulsivity, or planning ahead trait, defined as a tendency to choose a small, more immediate reward over a larger, more delayed reward, and centered on the "present orientation", with a 'lack of planning for the future and foresight'; and c) a cognitive trait, which involved propensity for quick decisions, 'making up one's mind -i.e., cognitive decisions- quickly'; it was similar to what the Eysencks called 'liveliness'.

More recently, the work of Barratt and some of his colleagues has been involved in gaining a better understanding of the different types of impulsivity. Luengo et al. (1991) agreed that impulsivity had three components, but there were not necessarily the ones proposed in Barnett's BIS-10. Its factor structure was far from being solid: most items that defined each factor had quite significant loading on the other factors too. The two first subtraits were psychometrically determined, being consistent with previous results (Patton et al. 1995), but the cognitive one, besides of being difficult to be measured with self-reports (Barrett 1991), was not identified per se, failing to emerge as a dimension distinct from the another two. Some authors (Luengo et al., 1991; Patton et al. 1995), had problems identifying cognitive impulsiveness per se, although others (97) did identify cognitive factors among their 15-factor solution of 373 impulsiveness items) (Gerbing et al., 1987; Swann et al., 2002). Being not a good predictor, it should be re-defined because either it does not exist (though processes underlie the general impulsivity trait) or subjects cannot independently assess those that characterize impulsivity. Redesignating more adequate factors, a new subtype was suggested, *attentional impulsivity*, even if it was not consistent with cognitive impulsivity nor similar to any of the substrates previously proposed by the Eysencks (1977).

Recently, several of Barratt's students (Houston & Stanford, 2005; Houston et al., 2002; Swann et al. 2002) prefer to talk about: a) *rapid-response* impulsivity, understood as an inability to conform responses to environmental context (inadequate assessment of the context); and b) *reward-delay* or non-planning impulsivity, as an inability to wait for a larger reward (smaller immediate rewards are preferred). Even if both correlated significantly with BIS scores, the former one does it stronger with personality disturbance and, consequently, it seems to be more related to trait impulsivity). For example, parolees with histories of violent crimes chose more immediate rewards than 'normal' control ones, whereas there were no significant differences in reward-delay impulsivity (Cherek et al., 1997).

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The role of impulsiveness may be different in relationship to personality traits. The BIS-11, for example, is an internally consistent measure of impulsiveness (Cronbach's $\alpha = .82$ in normals, and $= .83$ in psychiatric patients) and has potential clinical utility for measuring impulsiveness among selected patient and inmate populations (Patton et al. 1995).

4. Self-Report instruments on Aggression-related issues

4.1. Validity of self-reports

Some researchers may question the validity of self-report measures of aggression, arguing that social desirability and self-presentational concerns produce inaccuracy. That is, when dealing with a socially unacceptable behavior such as aggression, respondents may be hesitant to admit the extent of such behavior. It may be assumed that respondents are concerned with the opinions of others, that they fear they will be judged negatively if they admit to engaging in aggressive action, and consequently, they design procedures and instructions to suggest that such behavior might be acceptable or justified and to hide the respondent's identity.

These careful efforts do not deal with the problem of self-awareness. That is, it is likely that respondents may not be honest with themselves about their own aggressive behavior -they may deny the extent of their own aggressiveness (Österman et al., 1994). Richardson and Green (2003) examined this potential self-protective bias in self-report by comparing participants' self-report data to data from someone who knew the participant and reported on the participant's behavior. Specifically they asked respondents to identify someone who lived in the local area with whom they had been angry in the past month or so. Respondents then completed the questionnaire about their behavior when angry with the person they had selected as a target of their aggression. They were then asked to have those same targets complete the Richardson Conflict Response Questionnaire (RCRQ) in which they reported on the aggressive behavior of the participants while angry with them (i.e., the targets). Results indicated that self-reports of aggression were moderately and significantly correlated with targets' reports of aggression ($r = .55$ and $.58$).

Thus, although there appears to be some hesitancy to admit to engaging in aggressive behavior, effects are not 'wiped out' by a floor effect. Although the reported level of aggression is lower for self-report than other-report, there is adequate variability to reveal patterns of relationships among variables. Self-reports agree with peer reports, and similar patterns of effects arise whether people report on the behavior of others or on their own behavior. And something similar should be valid in relation to the other constructs studied (anger, hostility, and impulsivity) (O'Connor et al., 2001; Richardson & Green, 2003).

4.2. Some psychological aggression-related self-reports

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In an attempt to clarify some correlates of each type of aggression, there are many possible self-report questionnaires on aggression, including the Assaultiveness Scale of the Buss Durkee Hostility Inventory, the Aggression Questionnaire (AQ), the Aggression Scale of the Life History of Aggression, the EXPAGG, or the *Cuestionario sobre Actitudes Morales ante la Agresión* (CAMA). There are also a number of developed anger scales; e.g., the State Trait Anger Scale (STAS) and the State-Trait Anger Expression Inventory (STAXI), and the Anger Situation Questionnaire (ASQ). Some self-reports related with hostility, besides the above mentioned AQ and STAXI: the Buss-Durkee hostility inventory, the Hostility and Direction of Hostility Questionnaire (HDHQ), and the Watson and Greer questionnaire measure of emotional control. Finally, among the many impulsiveness tests existent in the clinical literature we could mention the Immediate and Delayed Memory task (IMT/DMT), variant of the CPT, the NEO Personality Inventory-Revised Impulsiveness subscale (NEO PI-R), the Washington University Sentences Completion Test (WUSCT), the Gray-Wilson Personality Questionnaire (GWPQ), the Eysenck Impulsiveness Scale/Questionnaire, the Sensitivity to Punishment Scale, the STAI-Trait scale, the Sensitivity to Reward Scale, the Sensation Seeking Scale-V, the Self Report Plutchik Impulse Control, the Lifetime History of Impulsive Behaviors (LHIB), the Dickman Impulsivity Inventory (DI), the Single Key Impulsiveness paradigm (SKIP), and the Barratt Impulsiveness Scale (BIS).

Although any of the above mentioned questionnaires could have been dully chosen for an empirical contrast of different kinds of aggression and their psychological concomitants, the present mini-review is focused on four specific self-report techniques, used by us over the last two decades, for the evaluation of different kinds of aggression (AQ), different attitudes toward interpersonal aggression (CAMA); the measure of experienced anger and its expression in assertive or aggressive ways (ASQ and AQ); hostility (AQ); and the different impulsivity traits (BIS-11).

4.2.1. AQ

The AQ, a well-known instrument devised by Buss and Perry (1992), is one of the most useful instruments to assess aggression, anger, and hostility. It consists of 29 self-report items concerning behavior and feelings. Each item is scored using a 5-point scale. There are four subscales: Physical Aggression (9 items), Verbal Aggression (5 items), Anger (7 items), and Hostility (8 items), which can be summed for a total aggression score.

AQ has a large cross-cultural validation. Originally developed for its application in the Anglo-Saxon culture, it has been applied by researchers of very different countries and translated into several languages, including Dutch (Meesters et al. 1996), Slovak (Lovas & Trenkova 1996), and Spanish and Japanese (Andreu et al. 1998; Ramírez et al. 2001). Our findings in undergraduates of these last two cultures confirmed its applicability to non Anglo-Saxon samples.

4.2.2. CAMA

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The acronym of CAMA, meaning *Cuestionario de Actitudes Morales sobre Agresión*, is a questionnaire originally constructed by Lagerspetz and Westman (1980), and subsequently revised by Ramirez (1985) and Andreu (2001) in order to investigate attitudes towards interpersonal aggression in different situations from the observer's perspective. Since the degree of approval would depend on the qualities of the behavior observed, the items describe several aggressive acts of different quality and intensity, from 'gentlest' to most harmful, in combination with different instrumental and hostile situations in which they may be conducted. The first version of the CAMA consisted of 46 questions - eight aggressive acts in six different situations in which aggression may be used. In order to distinguish more clear-cut between instrumental and hostile aggression, a subsequent version of the scale has been designed, by adding two more situations items, resulting in a total of 62 questions.

The eight categories of aggressive acts are the following: hitting, killing, shouting angrily, being ironic, using torture, having a fit of rage, threatening or hindering another person from doing something. Each category of acts was accompanied by a list of eight different circumstances in which the aggressive behavior may be justified, varying in quality (instrumental or emotional-hostile), namely: in self-defence, in protecting another person, in defence of one's property, to obtain sexual resources, to preserve self-esteem or reputation, as a consequence of emotional agitation, as a punishment, or as a way of overcoming communication difficulties. These items were selected from various sources: to the original questionnaire, some new items developed by ourselves were added in subsequent versions. The response scale for the questionnaire varied by sample, including a two-point scale (acceptable vs. not acceptable), a three-point scale (always, sometimes, never), and a four-point scale (usually, in some cases, in extreme cases, never).

This questionnaire has already been administered to about 3000 respondents, ranging in age from 12 to 90, and in quite varied cultures: in Finland (Lagerspetz et al., 1988; Lagerspetz & Westman, 1980), Britain (Benton et al., 1982), Poland (Fraçzek, 1985; Fraçzek et al., 1985), Spain (Ramírez, 1991, 1993; Ramírez & Folgado, 1985), Japan and the U.S.A. (Fujihara et al., 1996, 1999; Ramírez & Fujihara, 1997), Iran (Musazadeh, 1999), Canada (Paradis et al., in preparation; Ramírez et al., 2005), and South Africa (Theron, in preparation). Internal consistency reliability in those studies, calculated with Cronbach's alpha, has ranged from .77 to .91, indicating that it is good internally consistent. The internal consistency for the subtests in the Finnish population was .91 (Lagerspetz & Westman, 1980). Likewise, the Cronbach's alpha value for 560 Spanish subjects and 499 Iranian counterparts (total N=1,052) was .88 (Musazadeh, 1999). The value for another Spanish sample, applying the Carmines' Theta values, which is similar to the Cronbach's alpha, was quite satisfactory at .87 (Peña et al., 1997).

The evidence presented so far thus addresses the basic reliability of the CAMA. A factorial analysis of the principal components of CAMA and varimax rotation demonstrated two groups of situations (>0.35) internally consistent and relatively independent of one another (Ramirez & Andreu, unpublished results).

4.2.3. ASQ

The ASQ is a self-report instrument for measuring anger proneness: experienced anger and its expression in assertive or aggressive ways. Designed by Van Goozen (1994), it measures the responses to 42 hypothetical scenarios in its original complete version (we used a shortened version with the 17 vignettes with highest anger score), involving provocation, assessing people's self-reported disposition to act in the face of a standard set of provoking situations. Respondents are asked to imagine being in each of the various types of situations described in each vignette and to indicate: (1) which emotion they would experience if they were to find themselves in each specific situation (only one choice was to be selected from five different emotion labels representing common emotional experiences); and (2) how they would feel inclined to react to each situation (also only one choice among five possible action tendencies specifically tailored to the situation under consideration and randomly ordered).

In each vignette thus two dependent variables of anger disposition are measured, a stand-in of a valid representation of a real-life situation: the emotional angry experience (tendency to appraise emotional situations in angry terms) and the readiness to angry action in reaction to a number of common anger-provoking situations (differences in thresholds or disposition for showing angry responding). Whether a certain situation leads to anger experience and to its expression depends both on individual characteristics, such as age, sex, or personality, and on the sociocultural context of the situations, which allows, encourages, or inhibits the experience and the expression of anger (see Ramirez et al., 2001a, 2001b; Van Goozen et al., 1994, 1996).

It should also be emphasized that the ASQ is a scenario instrument that, rather than measuring people's real expression of anger, it assesses feelings about anger reactions in the face of a standard set of provoking situations (it was explicitly stressed to the subjects in the questionnaire that "the question asked was not what would they do but rather what they would feel inclined to do"). These hypothetical responses, therefore, may differ from reality for several reasons, such as the relative absence of provoking situations in their own lives and the inhibition of risky aggressive responses when the cost to benefit ratio is high (Björkqvist et al., 1994). Talk is cheap, and imagination is even cheaper.

4.2.4. BIS-11

The BIS is the first self-report measure developed specifically to measure trait impulsiveness. Its original version had 80 items (Barrat 1959). Barrat continued to look for a convergence of data that would clearly define impulsiveness. Consequently, over several decades, newer versions have been developed in order to improve the construct validity and homogeneity and to achieve a more 'pure' measure of a construct related to impulsive behavior. In the BIS-10 he proved three main facets or subtraits of impulsiveness, defined *a priori*: labeled: motor (*Im*), cognitive (*Ic*), and nonplanning (*Inp*) (Barratt, 1985).

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The BIS-11, with 34 items, is the newest version. Its total score correlated .98 with the BIS-10, and it is an internally consistent measure of impulsiveness (Cronbach's $\alpha = .82$ in normals, and $= .83$ in psychiatric patients). Six first-order factors and three second-order ones were identified: a) attentional impulsiveness (11 items: inattention, and cognitive instability); b) motor impulsiveness (11 items: motor impulsiveness, and lack of perseverance); and c) nonplanning impulsiveness (12 items: lack of self-control, and intolerance of cognitive complexity). Cognitive items were evident on all factors, although they were heavier weighted on attentional impulsiveness (Patton et al., 1995).

Barratt (1994b) found the factor structure of BIS to be different between students and psychiatric inpatients. Caution thus is warranted in generalizing the relationships between personality traits and criterion measures found in normal to non-normal populations.

5. Some correlations between the different constructs:

This section will address some findings obtained in our research and elsewhere to probe the main hypothesis, that there should be some correlation between aggression and other psychological constructs related to it. Assuming that aggression is not a unitary concept, there may also be some differences in these eventual correlations according to the kind of aggression they are compared with. The suggestion that aggression is reflected in the different personality constructs (Houstgon & Stanford, 2005) supports why some personality measures, such as the previously described self-report instruments, were applied. Specifically, the following questions were being addressed:

- a) are there different types of aggression? In the positive case, which would be the main commonalities and distinctions between them?
- b) is there any correlation between aggression and some related constructs, such as anger, hostility, and impulsivity?
- c) is there any correlation between the above mentioned related constructs?

5.1. Hostile vs. Instrumental Aggression:

Two decades of research on moral approval of aggressive acts, applying the CAMA questionnaire to urban populations of different cultures throughout the world, brought us to interesting conclusions reviewed in this paper: 1) those aggressive acts of milder intensity were more acceptable than those of stronger aggression, as expected; 2) a factorial analysis of the principal components of CAMA and varimax rotation showed two groups of situations (>0.35): those leading towards *Instrumental Aggression*, which include self-defence, defence of others, and defence of property; and the rest of the other situations with *Hostile responses*, which include lack of communication or emotional agitation; 3) both kinds of aggression, instrumental and hostile, as measured by the CAMA across the studies, were significantly correlated with one another ($r = .34$), with a shared variance as well as with some independence between both subscales; 4) the level of justification of instrumental aggressive acts, such as

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those conducted in protection of self or other, was clearly higher than the one of hostile acts (e.g. as an expression of emotions, as a result of communication difficulties) with no such justification; 5) within instrumental aggression, situations defending others and in self defense received more moral approval than did those defending property; and 6) provoked aggression led to more approval than unprovoked aggression; for example, killing was considered more justified for altruistic reasons than as a mere expression of bad temper, whereas punishment, emotional reaction, and communication problems were seen as the least justified circumstances for aggression (Ramírez, 2001; Ramirez & Andreu, 2003).

In other studies (Andreu et al., 2001; Archer & Haigh, 1997; Ramirez et al., 2001c) interesting differences were found analyzing social representation of aggression by the AQ and the correlations between AQ and CAMA: physical aggression obtained a significant negative correlation with hostile representation of aggression ($r=-.48$, $p<.05$), but, by contrast, a high positive correlation with instrumental representation of aggression ($r=.44$, $p<.05$). Finally, justification of aggression was significantly correlated to physical aggression ($r=.37$, $p<.05$) but not to verbal aggression ($r=.04$ n.s.).

These findings support the contention that aggression, far from being homogeneous, shows two distinct forms, which are different from one another, and differentially related to a host of other variables. There were pronounced personality differences (Stanford et al., 2003). The observed differences suggest that the physiological aspects of behavioral control play a key role in the type of aggressive behavior displayed. For instance, whereas underarousal is related to hostile aggression (Houston & Stanford, 2005) related to instrumental aggression are relatively normal psychobiological variables (Linnoila et al., 1999) and psychophysiological functions (Barratt, et al., 1997b).

Their moderate correlates, however, suggest that instrumental aggression and hostile aggression are similar in some ways, as we might expect. We thus predicted that those who engage in both types of aggression were less likely to be able to control their behavior and more likely to experience anger and to be more impulsive and more irritable than those who do not engage in these types of aggression, as it will be mentioned in the following pages. Grouping aggression according to different criteria, and applying the AQ, it was also found positive and significant correlations between physical and verbal aggression ($r=.35$, $p<.05$) (Andreu et al., 2002).

5.2. Experience vs. Expression of Anger:

A careful assessment of the differences between the intensity of anger experience and the frequency that it is expressed is not only essential for understanding problems rooted in anger, but also it is a necessary first step in treatment planning.

It was predicted that, even if a certain positive correlation should be expected between subjective anger experience and objective proneness toward an angry action, its experience would be shown in greater proportion. Studies of our own

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group showed a positive correlation between both, in accordance with the working hypotheses: those who experienced anger more frequently were also more likely to express anger. (Ramírez et al., 2001b, 2002). This result also matched with another previous study of us (Ramírez & Sancho, 1995), where a significant correlation of these variables with subcortical arousal was also found. Anger involves physiological arousal and prepares for aggression.

The feelings of anger, however, were much more frequent than the readiness to commit an angry action ($r = .30$, $p < 0.0001$), even if a positive correlation might be expected between them (Van Goozen et al. 1994). Nevertheless, this is, of course, reasonable as one is likely to show restraint particularly when one's actions may be harmful to others, as often happens in the expression of anger.

It should be added though that an over-control of anger, characterised by very low levels of anger expression, in the long term may risk an inappropriate and explosive expression of anger resulting in extreme violence (Allan & Gilbert, 2002)

5.3. Anger vs. Aggression:

Anger, as well as other emotions, may almost certainly be involved in some forms of aggression. Those who engage in aggression of any kind are less likely to be able to control their behavior and more likely to experience anger and to be more impulsive and more irritable than those who do not engage so often in aggression. Barratt (1991) hypothesized that trait behavioral approach sensitivity (BAS) would be positively related to the personality traits of anger/hostility, as well as with physical aggression (Harmon-Jones & Sigelman, 2001). Anger thus would be a negative but approach-related emotion associated with aggression (Harmon-Jones, 2003). Generally speaking, people high on trait anger would be more likely to accept aggressive responses. And this was precisely what was found, comparing CAMA and AQ: a significant correlation between anger and justification of aggression ($r = .10$, $p < .05$) (Andreu et al., 2001).

More specifically, we would expect that the trait anger would relate positively to our measure of hostile aggression because it reflects intention of harming others, i.e, it is motivated by anger. Therefore it would be relatively likely for irritable individuals to express hostile aggression (Barratt, 1991). This hypothesis was supported by a small, but significant, positive correlation between anger and the hostile representation of aggression ($r = .11$, $p < 0.05$), and, more specifically, between anger and 'lack of communication', included within hostile situations ($r = .22$, $p < 0.05$), being the highest one between the AQ sub-scales verbal aggression and anger ($r = .60$; $p < .05$) (Andreu et al., 2002; Ramirez et al., 2001; Ramirez & Andreu, unpublished results).

Instrumental aggression, on the contrary, might have a weaker relationship with irritability and, consequently, it would not necessarily relate positively to the trait anger, because it is not directly motivated by angry feelings. Making the distinction between hostile and instrumental aggression thus may clarify when aggression may be maladaptive and when it may not.

5.4. Hostility vs. Aggression

A comparison between the four sub-scales of the AQ showed significant positive correlation between all of them, supporting the hypothesized correlation between the personality traits anger/hostility and physical aggression, given the direct relation of both with trait BAS, already mentioned (Barratt, 1991; Harmon-Jones, 2003). More specifically, hostility showed a higher correlation with verbal aggression ($r=.34$, $p<.05$) than with physical aggression ($r=.20$, $p<.05$) (Andreu et al., 2002). This moderate correlation between hostility and both physical and verbal aggression was due mainly to their connection with anger. For example, when anger is less, the correlations between hostility and both physical and verbal aggression would be even lower. The partial correlation with anger controlled was .08 between hostility and physical aggression and .05 between hostility and verbal aggression (Ramírez et al., 2001c).

No correlation was found between hostility and justification of aggression ($r=.07$, n.s.), measured by AQ and CAMA respectively (Andreu, et al., 2001). Rather than assessing aggressive acts directly, one must remember that the CAMA questionnaire assesses attitudes and beliefs about aggression. In other words, both constructs - hostility and justification of aggression- are related to cognitive and affective facets, but not to behavioral ones, as is physical or verbal aggression. For example, this may explain why physical aggression is highly correlated to the justification of aggression ($r= .37$; $p<.05$) (Andreu et al., 2001).

5.5. Impulsivity vs. Aggression:

Impulsiveness is part of a system involved in controlling impulses that lead to being 'civilized', especially from a biological viewpoint. It relates to self-control and volition within the social context: persons are expected to behave within socially defined behavioral limits. Conformity often involves 'overcoming human nature' in learning to be civilized. 'Undercontrolled' behavior (i.e., impulsive, emotionally reactive, easily frustrated and overactive) is a spontaneous emotional state, beyond one's control. Some persons appear to be more predisposed than others to have problems in conforming. People who commit different types of criminal acts have high levels of impulsiveness (Barratt, 1991; Costa & McCrae, 1985). It would be expected, therefore, that impulsiveness plays an important role in the expression of specific types of aggression. Both are behavioral constructs difficult to separate.

We predicted that those who engage in both types of aggression were less likely to be able to control their behavior and more likely to be more impulsive and irritable than those who did not engage in aggression. We also suggested that hostile aggression – more impulsive and spontaneous - might show a positive correlation with impulsiveness, and more specifically with its non-planning subtrait, whereas this was not necessarily the case for instrumental aggression, given its need for planning and 'premeditation'. Our data in normal people showed that indeed hostile aggression, but not Instrumental aggression, correlated positively with non-planning impulsiveness ($r=.23$ with lack of

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communication, and $r=.28$ with emotional agitation, $p<0.05$) (Ramirez & Andreu, unpublished results).

Other authors, however, studying inmates and psychiatric outpatients, found high impulsiveness in both types of aggression, with no significant difference in impulsiveness scores, measured by BIS (Barratt, 1997; Stanford et al., 2003; Houston & Stanford, 2005). According to these recent data, 'impulsive' or hostile aggression may not score higher in impulsiveness than the 'non-impulsive' or instrumental aggression. Perhaps this is another reason why it may not be appropriate to label as 'impulsive' aggression to what we prefer to call 'hostile'.

Not only the personality traits of anger/hostility but also those of impulsiveness thus would be significantly related to aggression. But this does not necessarily mean a direct link among impulsiveness and aggression, as it has been shown by an investigation in a non-offender sample of British males: there were significant inter-relationships only between higher impulsivity and poorer social problem solving, and between poorer social problem solving and greater aggression (McMurrin et al., 2002). Impulsivity does not seem to be a direct risk for aggression, but only indirectly. Perhaps it presents an obstacle to learning in the early developmental years, and the legacy of poor problem solving is what later contributes to aggression. Barratt and Slaughter (1998) concluded that, while the personality trait of impulsivity along with anger provocation may be necessary for hostile aggression, these are not sufficient.

5.6. Hostility vs. Anger:

As mentioned previously, it was predicted that those who engage in aggression were more likely to experience anger and to be more impulsive and, consequently, certain correlation between these two constructs could also be expected. In fact that was what an analysis of the AQ subscales showed: the highest correlation between the different sub-scales was precisely between anger and hostility ($r=.60$, $p < .05$) (Andreu et al., 2002).

5.7. Hostility vs. Impulsivity

Physical and verbal aggression correlated with activity (for men, only physical aggression) and impulsiveness, and with assertiveness and competitiveness. Anger correlated with all the traits (except sociability and self-consciousness), being these correlations higher than those with physical and verbal aggression. Hostility showed the most complex pattern, correlating: strongly with emotionality, impulsiveness, and self-esteem; moderately with self-consciousness; and barely with assertiveness (Buss & Perry, 1992). The correlations found between impulsivity and the AQ scores were the following:

	PA	VA	Anger	Hostility
Impulsiveness	.28*	.31*	.42*	.37*

5.8. Impulsivity vs. Anger

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As previously hypothesized, the expression of anger might reflect an uninhibited response, and, consequently, there would be a positive correlation between the personality traits of anger and impulsivity. Irritable individuals would be rather impulsive in their expression of aggression. People with a tendency to 'lose their temper easily' possess high levels of both impulsivity and anger (Barratt, 1985; 1991). There are well-established links between negative affective states and internally directed impulsive behaviours (such as self-harm), but it is unclear whether there is also an association with externally directed impulsive behaviours (such as sexual promiscuity or theft). In a non-clinical group of women, it has been shown that individuals who engage in internally directed impulsive behaviours are more likely to experience and to express anger relatively frequently and without specific provocation (Milligan & Waller, 2001). In another study with combat-related PTSD veterans, however, there was no empirical evidence of a relationship between anger and impulsivity: whereas veterans with psychiatric diagnoses scored significantly higher on anger than well-adjusted veterans, they did not differ significantly on orthogonal factors, one of which comprised cognitive impulsivity measures and the other of which reflected motor impulsivity (Chemtob et al., 1994). Finally, if some biological theories of personality were accepted (e.g., Gray, 1987), one would expect anger and impulsiveness to be separated personality dimensions. The fact that the BIS-10 total score correlated significantly with Spielberger's AX-24 anger-out score ($r=.35$, $p<.0001$), and negatively with anger-control score ($-.41$, $p<.0001$) (2) may not necessarily mean dependence among one another.

6. Final Comments

The examination of instrumental and hostile aggression and of some aggression-related correlates has contributed further to our conceptual understanding of aggression. The findings reviewed in this paper support the contention that instrumental and hostile aggression are two distinct forms of aggression, different from one another. We refer to them as if they were independent of one another or as if a person does either one or the other, even if, in fact, there is also a moderately correlation with one another. Both forms of aggression share considerable variance. This significant relationship between them actually suggests that people who report using one kind of aggression also report using the other, and that aggression may be associated to a distinctive personality style, regardless of its type (Houston & Stanford, 2005).

We have explained our findings in terms of the types of individuals who endorse these two forms of aggression. Indeed, we examined relationships between them and a particular set of personality characteristics, such as anger, hostility, and impulsivity. In general terms, our initial rationale considered that instrumental aggression is associated with a sort of skills for achieving a goal other than harming, and hostile aggression is associated with a willingness to confront and express anger and with lack of planning. In fact, situations may be defined in terms of similar characteristics to those measured at the individual level, and we might predict the type of aggression a person would use according to their comfort with confrontation or general social ease in particular

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situations. The findings summarized here suggest that instrumental aggression might take more skills than hostile aggression, as it could require some forethought and strategic planning. And, on the contrary, hostile aggression may actually be associated with a lack of some social skills, such as those required for assertion or expression of anger. Future research might examine the possibility that the use of aggression could be interpreted as a difficulty in dealing with conflict or even a maladaptive strategy for conflict (Archer, 2004).

What is the picture of both kinds of aggression that is revealed by their relationships with other aggression-related variables? Reports of engaging in hostile aggression are associated with expressing rather than controlling anger, with a more general irritability, and with an inability to inhibit action. Not only the personality traits of anger/hostility but also those of impulsiveness would be significantly related to aggression. The individual who uses hostile aggression might be characterized as one who is not inhibited in social interaction and who is likely to experience and express anger. On the contrary, reports of engaging in instrumental aggression show that if you want to be really skilful in your pretended goal, you should control anger. An aggressive act thus does not have to be necessarily accompanied by anger or by the desire to hurt (Averill, 1982). The traditional assumption that anger necessarily causes aggression should be questioned (see Berkowitz, 2000).

Anger plays a causal role in aggression. First, it reduces inhibitions against being aggressive in at least two ways. Anger sometimes provides a justification for aggressive retaliation - it is part of the decision rule in the aggression script. But anger may also sometimes interfere with higher-level cognitive processes, including those normally used in moral reasoning and judgment, which are part of the reappraisal process. Second, anger allows a person to maintain an aggressive intention over time. Anger increases attention to the provoking events, increases the depth of processing of those events, and therefore improves recall of those events.

Anger also plays a key role in human cooperation. According to Ernst Fehr (cited by Ananthaswamy, 2002), it's not love, affection or even blatant self-interest that binds human societies together - it's anger. In contrast to the common view that negative emotions lead necessarily to pessimism, the emotion of anger might also lead to optimism, according to a recent field experiment by Carnegie Mellon University scientists (Lerner et al., 2003) on emotions and perceptions of the risk of terrorist threats in USA following the terrorist attacks on September 11th, 2001. It revealed that the impact of anger on Americans' perceptions of terrorism promoted greater optimism and more aggressive policies. Those who experienced anger are more optimistic about the future, less likely to take precautionary actions, and more likely to favor aggressive policy responses than those who experienced fear. They also hypothesized that males would experience more anger and females would experience more fear. The predictions were confirmed: men experienced more anger about terrorism than women did, leading them to make relatively more optimistic risk estimates. In other words, men perceive less risk than women because they are angrier. The personality traits of each individual thus have an important influence on anger and on its expression.

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To summarise, the positive correlation empirically found between hostile aggression, anger, hostility, and impulsiveness showed a high adjustment with the prototypical description and characteristics given to the hostile aggression, also known as impulsive or affective. By contrast, instrumental aggression did not significantly show most of the above-mentioned characteristics. The use of personality measures, therefore, may help to clearly differentiated aggressive subjects from 'normal' population, and perhaps even between them.

These findings should be interpreted with some limitations in mind. Their generalizability would be enhanced by research examining similar hypotheses with a more extended battery of psychological assessment of aggressive behavior and its related constructs, including criteria other than self-reports, such as objective measurements. Continuing work in this area would also benefit from a search for psychophysiological, psychopathological, and neuropsychological substrates, and also from its analysis in abnormal samples, such as psychiatric patients or inmates. Further research might search for situations that are likely to encourage or discourage each of the types of aggressive response.

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