Disentangling impulsiveness, aggressiveness and impulsive aggression: An empirical approach using self-report measures

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Abstract

There is confusion in the literature concerning the concept of impulsive aggression. Based on previous research, we hypothesize that impulsivity and aggression may be related, though not as closely as to consider them the same construct. So, our aim was to provide empirical evidence of the relationship between the impulsivity and aggressiveness constructs when considered as traits. Two widely used questionnaires [Barratt’s Impulsiveness Scale (BIS) and Aggression Questionnaire—Refined (AQ-R)] were administered to 768 healthy respondents. Product-moment and canonical correlations were then calculated. In addition, a principal components analysis was conducted to explore whether impulsive aggression can be defined phenotypically as the expression of a single trait. The common variance between impulsivity and aggressiveness was never higher than 42%. The principal components analysis reveals that one component is not enough to represent all the variables. In conclusion, our results show that impulsivity and aggressiveness are two separate, although related constructs. This is particularly important in view of the misconceptions in the literature.

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1. Introduction

According to the World Health Organization, violence is one of the leading public health problems worldwide (Krug et al., 2002). Acts of aggression have a deep impact on society and therefore on psychiatry and related fields. But what is aggression? Many definitions have been put forward. The most widely accepted is the one proposed by Berkowitz (1993): a goal-directed motor behavior that has a deliberate intent to harm or injure another object or person. This is a relatively consensual definition of aggression (Berkowitz and Harmon-Jones, 2004).

In order to understand the etiology and origins of aggressive behavior and to find a successful treatment, several taxonomic systems have been proposed (Parrott and Giancola, 2007). However, although there is relative agreement that aggression refers to observable behavior, the terms “anger”, “aggression”, “hostility”, “impulsivity” and other traits and behaviors have been used interchangeably by some clinicians and researchers, while remaining clearly distinct to others (Suris et al., 2004). This lack of clarity may be representative of the theoretical overlap of concepts, or it may be that some terms represent behavioral manifestations of the higher level organizing
principles represented by other terms. Some authors (Coccaro, 1998) state that there may be a lack of conceptual differentiation between the terms used to represent target behaviors, which has led to confusion in differentiating between predictor and criterion measures. It is important to define clear criteria to explore the constructs, because precise criteria would improve predictions based on measures of observable conducts or non-observable traits (predictors). Moreover, confusion may arise both at conceptual or methodological levels. It is also evident in the DSM-IV-TR, where there is no specific definition of aggression. In addition, it includes a cluster of underlying and precipitating variables that are frequently related to aggression (Buss and Perry, 1992; Eysenck and Eysenck, 1978), the most important of them being impulsivity (Hollander and Stein, 1995). Some authors state that these variables are interrelated via higher order constructs to the degree that they share common variance (Suris et al., 2004). Impulsivity is often defined as “a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individual or to others” (Moeller et al., 2001), a definition only suitable for a personality trait, understood as a propensity to emit a certain response to stimuli.

Considerable efforts have been devoted to the classification of aggressive behaviors. Barratt and Slaughter (1998) classified aggression into three categories: premeditated, medically related, and impulsive. Coccaro went a step further and defined aggressive impulsivity as aggressive behavior in a deliberate and non-premeditated fashion (Coccaro, 1998; Moeller et al., 2001). This distinction between premeditated and impulsive aggression has become popular in the literature (Coccaro and Kavoussi, 1997; New et al., 2002), and has even led to the development of specific tools to capture it (Mathias et al., 2007; Stanford et al., 2003). Impulsive aggression per se has been described variously as (1) a single trait-like dimension (Coccaro et al., 1989; Siever and Davis, 1991); (2) a subset of impulsive behaviors (e.g., “impulsivity with an aggressive flair”: Seroczyński et al., 1999); (3) a subset of aggressive behaviors (e.g., “unplanned aggression”: Barratt et al., 1994; Barratt et al., 1999); or (4) the combination or interaction of separate traits (Depue and Lenzenweger, 2001). As a result of this mixture of definitions both in terms of traits and behaviors, boundaries and relations between terms are unclear (Critchfield et al., 2004, p. 558). For instance, in an excellent review, Coccaro (1992) argues “that the existence of a dimensional brain–behavior relationship such that reduced central 5-HT system function in patients affected by major mood and/or personality disorder is associated with a trait dysregulation of impulse control, the presence of which enhances the likelihood of self- and/or other-directed aggressive behavior, given appropriate environmental triggers” (p. 10). Critchfield et al. (2004) points out that one implication of this theory is that impulsivity and aggression are expected to appear together on the phenotypic level, justifying the use of the term impulsive aggression as a single trait-like dimension.

Regarding the assessment of impulsive aggression, Coccaro and his team (Coccaro, 1998; Coccaro et al., 1998) devoted much effort to defining the concept of intermittent explosive disorder (IED). These articles laid the groundwork for future research in the field and were later on extended to children and adolescents (Olvera et al., 2001). In those seminal articles, Coccaro and colleagues explored the reliability and validity of IED based on behavioral measures. Certainly, it was a cleverly designed study and it provided useful insights on the diagnosis of IED, but it might seem that their results went unnoticed in the literature. When addressing the issue of construct validity (Coccaro et al., 1998), they stated that “the findings using the impulsivity measures were less striking with only a trend towards statistical significance for BIS-11 impulsivity ($F[1,56]=3.70, P=0.061$) and no significant difference on the I7 impulsivity ($F[1,62]=2.05, P=0.16$) measures” (p. 371, the italics added). Coccaro and his group do not view impulsivity and aggression as interchangeable, but they fail to clarify the issue in the discussion by simply pointing out that subjects with IED-R scored higher on impulsivity. Certainly, they scored higher in their sample, but not significantly, which invalidates the argument for the population. These criteria have influenced other studies in the field (e.g. Best et al., 2002), which perpetuate the same misinterpretation: “Severe psychiatric conditions related to IED are characterized by the inability to inhibit aggressive or impulsive behavior” (p. 5, italics added).

Nonetheless, there is evidence of a misuse of the term “impulsive aggression”. For instance, Dolan et al. (2001) explored the relationships between impulsivity, aggression and serotonin function in a sample of male offenders with personality disorders. They stated that “impulsivity and aggression were difficult to separate”, but they used composites based on z-scores, and, although aggression scores were not significant for prediction of serotonergic function, they refer throughout the article to “impulsivity/aggression” (p. 358). In another study, Siever et al. (1999) studied the d,l-fenfluramine response in “impulsive personality disorder” with positron emission tomography. They equate “impulsive aggression disorder” with “intermittent explosive disorder” assessed by means of the “Module for Impulse Aggression Disorder (E. Coccaro et al., personal communication)” (p. 414, italics added). This kind of misinterpretation should be avoided, the original...
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