



Language and executive function in self-reported impulsive aggression

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Abstract

The present study employed a battery of verbal tests that included a broad range of executive demands to demonstrate the differential contributions of language and executive function to the performance decrement observed in individuals who display impulsive aggressive (IA) outbursts. A profile analysis revealed that despite not differing on tasks requiring limited verbal output, the IAs deviated further from nonaggressive controls as the tasks required increasing spontaneous organization. Results suggest that language ability per se is not impaired in IAs; rather inefficient executive functioning is responsible for their significantly poorer performance on complex verbal tasks.

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1. Introduction

Each year, there are well over a million reports of violent crime and domestic battery in the United States (Bureau of Justice Statistics, 2000). These aggressive behaviors have profound social, legal, and political effects. As school violence increases and the age of violent offenders decreases, leaders, educators, and families have demanded answers to questions regarding the causes of aggression, the identification of those at risk for committing violent acts, and the prevention of these acts. The scientific community has responded with a bolstered interest in identifying predisposing factors of violence, a more descriptive classification system of aggression and aggressive acts (Barratt, 1991), recognition of associated behavioral, neurological, and physiological deviations (Barratt, Stanford, Kent, & Felthous, 1997; Maughan, Pickles, Hagell, Rutter, & Yule, 1996; Stanford & Barratt, 1996) and an effort to develop preventative strategies for at-risk individuals (Vance, Fernandez, & Biber, 1998), as well as the application of modification strategies to assist those who commit violent acts (Kellam, Mayer, Rebok, & Hawkins, 1998).

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Due to the heterogeneous nature of violence and aggression, a classification system is necessary to determine treatment options and facilitate the clinical, neuropsychological, and physiological description of the various types of violence and violent offenders. Barratt (Barratt et al., 1997) makes a clear distinction between premeditated and impulsive aggressive (IA) acts and the individuals who commit them. Premeditated acts are consciously executed or planned aggressive behaviors. Conversely, impulsive acts are an emotionally charged, uncontrolled type of aggressive display. This act can range in intensity from verbal aggression to homicide (Barratt et al., 1997; Stanford, Greve, & Gerstle, 1997). The impulsive aggressive individual displays intermittent aggressiveness grossly out of proportion to any precipitating psychosocial stressors. They frequently make poor decisions in problem solving situations (Kagan, 1966) and often react more aggressively in conflict situations (Olson & Hoza, 1993). Furthermore, impulsivity has been associated with increased risk-taking behavior, a younger age of first arrest, poor school performance, and increased behavior problems (Olson & Hoza, 1993; Richman & Lindgren, 1981; Stanford, Greve, Boudreaux, Mathias, & Brumbelow, 1996; Vitelli, 1998). Subsequently, impulsive individuals are at greater risk for dropping out of school, engaging in criminal activities, and seeking out more stimulating environments. The destructive nature of an impulsive aggressive individual intensifies the need for accurate identification and treatment.

One way to distinguish IAs from other violent or troubled populations is with cognitive testing. For example, IAs have problems with perceptual organization (Mungas, 1988), and fine and gross motor skills (Lewis, Shanok, Balla, & Bard, 1980; Stanford et al., 1996). But the most noticeable, and perhaps most handicapping deficit is in the area of language. Highly aggressive individuals, including impulsive aggressive individuals, consistently score low in vocabulary, language and reading comprehension, receptive and expressive language, sentence repetition and completion, and verbal intelligence and memory (Harmon-Jones, Barratt, & Wigg, 1997; Lewis et al., 1980; Richman & Lindgren, 1981; Spellacy, 1977; Stanford et al., 1996). Impulsivity coupled with deficits in verbal ability has been related to delinquent activities, poor school performance, and increased behavior problems (Maughan et al., 1996; Miller, 1988; Silva, Williams, & McGee, 1987). Reading problems, in particular, have been associated with increased behavioral problems in female adolescents and an increased risk of juvenile offending among male adolescents (Maughan et al., 1996). Impulsiveness, as well as incidence of physical and verbal aggression, is inversely correlated with reading accuracy, reading comprehension, and verbal skills (Barratt et al., 1997; Harmon-Jones et al., 1997; Stanford et al., 1996).

Brinkley, Bernstein, and Newman (1999) studied the verbal output (telling a story) of psychopaths using a coherence/plot unit analysis. They reported a lack of cohesive ties in their narratives. That is, psychopaths resolved fewer plot units than controls. Furthermore, story guides that contained key plot elements hindered rather than helped their performance. Brinkley et al. (1999) suggest that psychopaths have more poorly organized speech than their nonpsychopathic peers. This investigation revealed a poor performance that could not be explained by impaired verbal ability only. A lack of organization reflects some executive problems. Executive function includes attention, concentration, concept formation, abstract reasoning, goal formation, social/self monitoring, hypothesis generation, set shifting in response to changing environmental demands, planning, temporal ordering, organization, associative learning, and inhibitory control (Fuster, 1997; Giancola, 1995; Moffitt & Henry, 1989).

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