Abstract  The clinical population of aggressive children diagnosed as having an oppositional defiant disorder (ODD) or a conduct disorder (CD) is heterogeneous, both with respect to behaviour and aetiology. Recently, the following distinction has been proposed that might further clarify this heterogeneity: reactive aggression is an aggressive response to a perceived threat or provocation, whereas proactive aggression is defined as behaviour that anticipates a reward. In this article we examine various aspects of this distinction. We will [1] examine the evidence that reactive and proactive aggression are distinct phenomena by discussing the theories underlying the distinction between the subtypes in humans and we briefly review evidence for a similar distinction in animals; [2] we critically review the literature on the measurement in children via questionnaires and behavioural observations; we then point out that the correlation observed between the subtypes is due to the fact that many children show both types of aggression; [3] we review the literature on specific characteristics of the subtypes giving attention to social information processing, peer status, biological correlates and developmental history, and demonstrate that there is some evidence to suggest that reactive and proactive aggression are distinct dimensions; [4] we discuss the relevance of the distinction between reactive and proactive aggression for child and adolescent psychiatry.

Introduction

There is a growing consensus that the population of children diagnosed as having either an oppositional defiant disorder (ODD) or a conduct disorder (CD) is a heterogeneous one, both with respect to behaviour and aetiology. This heterogeneity may be caused by the presence or absence of comorbid disorders such as attention deficit hyperactive disorder (ADHD) or anxiety and mood disorders. However, it is unclear whether the heterogeneity in ODD/CD can be fully explained in terms of comorbidity. We review a recently proposed distinction between reactive and proactive aggression that should enable us to understand and to some extent to integrate, past subtyping approaches such as impulsive versus controlled aggression; this distinction might also shed new light on the aetiology and treatment of children diagnosed with ODD and CD.

Definition of aggression

Because aggressive behaviour occurs in the context of other types of antisocial behaviour, the two terms are often aggregated [50]. In view of this, a first step is to formulate clear definitions of aggressive behaviour and of antisocial behaviour.

In human research, a widely used definition of aggression is behaviour deliberately aimed at harming people and/or objects [15]. In this definition harm has implicitly been defined as hurting someone physically,
Aggression is a specific form of antisocial behaviour. Research into impulsive forms of aggression is typically explosive and uncontrolled and is accompanied by high levels of arousal and emotions such as anger and fear [51]. The other line focuses on non-impulsive aggression, which is goal-oriented and accompanied by low arousal [51]. With respect to non-impulsive aggression, there is an extensively researched group of people, referred to by forensic psychiatrists and psychologists as psychopaths, who are known for the instrumental way in which they use aggression. Psychopathy is characterised by traits such as dominance, callousness, lack of emotion, and a lack of guilt [24]. The violence that psychopaths show is instrumental and unemotional; this type of violence seems to fall into the category of non-impulsive aggression.

With regard to the distinct forms of aggression in adults, research has focused mainly on two perspectives: measurement of neurotransmitters like serotonin and psycho-physiological arousal. One of the most consistent findings regarding these two types of aggression concerns the measurement of serotonin metabolites in the cerebrospinal fluid. Subjects showing impulsive aggression have lower serotonergic activity than do non-impulsive individuals as indicated by low levels of these metabolites [27]. With regard to physiological arousal measures, the evidence for a distinction between two types of aggression is less robust. Although in general the resting heart rate and skin conductance level are lower in antisocial individuals [46], there is only indirect evidence for a difference in arousal between impulsive aggressive and non-impulsive aggressive individuals. Low heart rate in antisocial individuals is thought to reflect under-arousal [46] and is probably indicative of non-impulsive aggression. In contrast, it has been found that increased or extreme levels of arousal, e.g. high heart rates and skin conductance, facilitate impulsive aggression [54].

Subtypes of aggression in animals and humans

In addition to the differentiation in human aggression, biologists have also distinguished between various types of aggression in animals. On the basis of the topographical features of behaviours [31, 37] and the biochemical and neuro-anatomical aspects that underlie these behaviours, several different forms of aggression have been distinguished, e.g. maternal aggression, irritable aggression, fear-induced aggression, territorial aggression, instrumental aggression and predatory aggression [37].

Both human and animal biological researchers [19, 23, 45, 48, 53] have made numerous attempts to categorise these forms of animal aggression into a bimodal classification based on the differences in psychological and neurochemical processes that are associated with these behaviours. They differentiated between an aggressive defensive response in reaction to stimuli like threat that may be real or perceived, i.e. affective/defensive aggression, and an offensive/instrumental, highly