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Children's aggressive responses to neutral peer behavior: A form of unprovoked reactive aggression

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ABSTRACT

Previous studies that operationalized reactive aggression using behavioral observations in general populations have not taken into account the type of stimulus that elicits reactive aggression. In the present study we define a specific form of reactive aggression, i.e., reactive aggression in response to neutral behavior of a peer, which we will call unprovoked reactive aggression. We were specifically interested in children with severe aggressive behavior problems, since they may respond with reactive aggression even though the opponent did not clearly provoke them, but instead showed neutral behavior. Children with a disruptive behavior disorder (DBD) and normal control (NC) children participated in separate play sessions in which they played with a normal peer (NP). Children with DBD showed more unprovoked reactive aggression than NC children, during a cooperative game. Moreover, for children with DBD, unprovoked reactive aggressive behavior in this game correlated with parent-rated reactive aggression. Results of this study suggest that an unprovoked reactive form of aggression can be identified in children with DBD.

1. Introduction

The clinical population of aggressive children diagnosed as having either an oppositional defiant disorder (ODD) or a conduct disorder (CD) is heterogeneous, both with respect to behavior and aetiology. Therefore, a unitary construct of aggression does not suffice to qualify the behaviors of children with ODD or CD, together referred to as disruptive behavior disorders (DBD). Moreover, theories of aggressive behavior (Berkowitz, 1989; Bandura, 1973) suggest the existence of different forms of aggression. In this respect, a distinction in children's aggressive behavior between reactive and proactive aggression (Dodge and Coie, 1987; Dodge, 1991; for review see Kempes et al., 2005) is of importance.

Over the past years a growing body of research has been dedicated to the distinction between reactive aggression and proactive aggressive behavior (Vitaro et al., 2006; Kempes et al., 2005; Dodge, 1991). In contrast to proactive aggression, which is defined as behavior that anticipates a reward, reactive aggression has its roots in the frustration–aggression model of Berkowitz (Berkowitz, 1989). It is described as an aggressive response to a perceived threat or provocation.

An abundance of studies on reactive and proactive aggression have focused on questionnaires. It was found that reactive and proactive aggression as measured by teacher-rating scales are indeed a two-dimensional phenomenon (Poulin and Boivin, 2000). The two types of aggression are related to different kinds of variables, i.e. social information processing, peer status, developmental history, in ways that are consistent with their definitions (for reviews see Kempes et al., 2005; Merk et al., 2005; Vitaro et al., 2006). Nevertheless, correlations found between teacher-rated reactive and proactive aggression are substantial (Dodge and Coie, 1987; Brown et al., 1996).

In addition to studies using questionnaires, some studies investigated the distinction between reactive and proactive aggression by using behavioral observations of play-group interactions between peers in laboratory settings (see for example Dodge and Coie, 1987; Price and Dodge, 1989; Schwartz et al., 1998). Not only were observed reactive and proactive aggression highly correlated with each other, but correspondence between teacher-rated and observed measures of reactive and proactive aggression was also low, with correlation coefficients ranging from 0.16 to 0.27 (Dodge and Coie, 1987; Price and Dodge, 1989). These results raise the question whether observed and teacher-rated reactive and proactive aggression represent the same phenomena.

A factor that might underlie the high correlations between reactive and proactive aggression and the low correlations between teacher-

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rated and observed measures is the operationalization of reactive aggression. Most observation studies that investigated children's aggressive behavior considered reactive aggression as a homogeneous category of behavior, with the emphasis lying on the impulsive and highly aroused nature of this form of aggression, and do not discriminate between factors that incite aggression. When we consider reactive aggression as an impulsive response to the behavior of an opponent, we can distinguish between different instigators. That is, aggression, provocation, or anger of a peer. However, so far researchers have mainly focused on samples from a general population. Children with severe aggressive behavior problems such as children with disruptive behavior disorders (DBD) may respond with reactive aggression even though the opponent did not clearly provoke them, but showed neutral behavior. This form of unprovoked reactive-aggressive behavior may be rooted in a hostile misinterpretation of the peer's intent (for a meta-analysis see Orobio de Castro et al., 2002).

In the present study we aimed to investigate the above described form of reactive aggression, i.e., reactive aggression in response to neutral behavior, in DBD children. We conducted a dyadic play session in which normal children (NC) and DBD children played aggression-facilitating games. Previous research showed that the type of interactive partner (a DBD child or a normal peer) plays a role in the generation of antisocial behavior of DBD children (Matthys et al., 1995a) and that acquaintance with the interactive partner influences the generation of antisocial behavior (Matthys et al., 1995b). Therefore, in the present study, both NC and DBD children played with the same unacquainted normal peer (NP). We used a theory-derived criterion, i.e., latency between the action of a peer and the reaction of the focal child, to define reactive aggression as quick aggressive behavior. Thus, reactive aggression in this study was narrowed down to quick aggression in response to neutral behavior of the peer. In this definition of reactive aggression the interaction partner does not clearly provoke the aggression shown by the focal child. To examine external validity, we related observed unprovoked reactive aggression to parent-rated reactive and proactive aggression. We expected that observed unprovoked reactive aggression would be positively related to parent-rated reactive aggression, but negatively or unrelated to parent-rated proactive aggression. To investigate whether the observed unprovoked reactive aggression was related to a possible misinterpretation of the peer's intent we also included a measure of interpretation of the peer's intent.

2. Methods

2.1. Participants

The participants were Caucasian boys ($n=120$) aged between 8 and 12 years, subdivided into DBD ($n=40$), NC ($n=40$) and normal peers (NP) ($n=40$). The study was approved by the Central Committee on Research involving Human Subjects in the Netherlands and subjects participated with informed consent.

The NC and NP children attended grades 3–6 of Dutch regular elementary schools. In the present study NP children were regarded as normal developing play partners. Since we compared the behavior of children with DBD with the behavior of NC children, we assessed whether NC children showed a disruptive behavior disorder. A Diagnostic Interview Schedule for Children, parent version 4.0 (DISC-IV-P; Shaffer et al., 2000), that was completed by the parents revealed that none of them showed a disruptive behavior disorder. The DBD group was recruited from in-patient and day treatment units of our Department, which is specialized in the psychiatric treatment of children with DBD ($n=19$) and from special schools for children with severely disruptive behavioral disorders ($n=21$). Most children met the criteria for oppositional defiant disorder (ODD) ($n=29$) or conduct disorder (CD) ($n=5$) as assessed by the DISC-IV-P. The six boys who did not meet the criteria for ODD or CD as assessed by the DISC-IV-P did meet the DSM-IV criteria (American Psychiatric Association, 1994) for one of these disorders according to the psychiatrist. This clinical diagnosis was based on extensive diagnostic assessment: psychiatric interviews; psychological assessment of the child; interviews with the parents, including discussion of the developmental history; and standardized information from the child's teacher. On the basis of the information from these various informants, a board-certified child psychiatrist made the clinical diagnosis.

2.2. Procedures for the play sessions

Participants were taken from the special or regular schools by a research assistant and brought to our outpatient clinic. The NC/DBD child arrived in another room than the research room 45 min before the play session started. During this time the child was entertained with non-provoking video films or games by a research assistant. The normal peer (NP) arrived 15 min before the session started and was welcomed by another research assistant in the observation room. This room was unfamiliar to the NP, but familiar to NC children and children with DBD who already had undergone psychological assessments in the observation room. When the play session started, the researcher who had entertained the DBD/NC child led him to the research room and introduced him to the NP. All children were unfamiliar to one another. NC children and children with DBD, who were matched on age and IQ, played with the same NP in different play sessions. In this way variation in behavior due to a different interaction partner was kept to a minimum. In addition, all play sessions were performed in the same laboratory setting in order to keep variation due to contextual factors as low as possible.

Observations were made between 0.45 pm and 4 pm and lasted 1.5 h. The children played four games in succession: a competitive game (called the fish game) that lasted 15 min, a cooperative game (the zoo game) that lasted 15 min, free play (darts/table soccer) that lasted 10 min and a provocative game (high-speed domino) that lasted 20 min. A previous study demonstrated that these situations could be regarded as problematic situations for the population of school children (Matthys et al., 2001).

In the fish game children had to catch snapping fish from a rotating fishpond using an angling stick. The child who caught the most fish was the winner. In the zoo game the children were asked to cooperate in constructing a zoo that each of them would like; they had to allocate a large number (195) of animal figures compatibly in a given number of cages. Mutual consultation was necessary since there were too many figures to accommodate in the plan. Children received points for co-operation and consultation. In this game both children received equal points. The third game consisted of free play in the form of games like darts and table football. This free play was used to arouse the children in preparation for the last game, high-speed domino. In the domino game each child had to set up his own course with upright domino stones following a route that was drawn on a table. When they reached a certain spot on the board, they earned a point. The one who was fastest received an additional point. The two courses crossed each other at several places on the board allowing the children to accidentally or deliberately knock over the domino stones, which could be conceived as provocation. To motivate the children, the researchers promised them a present if they gathered enough points over the games.

Before the start of each game the rules were explained by a research assistant, after which she left the observation room. Several researchers observed the interaction from behind a one-way mirror. The sessions were videotaped. The NP played first approximately 1.5 h with one child, and then after a short break he played with the other child of a NC–DBD matched pair. To control for possible sequence effects, the order in which the NP children played with DBD or NC children was varied systematically.

In addition, we tested the null hypothesis that the rate of overall aggression NP children showed towards the NC children did not differ from the rate of unprovoked reactive aggression they displayed towards DBD children in both the zoo and domino game (zoo game: $t=-1.31$, $df=37$, ns; domino game: $t=-0.41$, $df=37$, ns). In accordance with the null hypotheses, we also found that NP children did not differ in the amount of unprovoked reactive aggression directed towards NC and DBD children in the zoo game ($t=-1.52$, $df=37$, ns) and the domino game ($t=-1.52$, $df=36$, ns). More important, the rate of unprovoked reactive aggression the NP children directed towards NC children was comparable to the rate of unprovoked reactive aggression that the NC children directed towards them in both the zoo game ($t=1.68$ $df=38$, ns) and the domino game ($t=-0.91$, $df=37$, ns).

Two children had to be removed from the analyses. One DBD child refused to interact and play the games with his peer during the session. Unexpectedly, one NC child appeared to be familiar to his peer. For one NC child, data in the domino game were missing due to a problem with the videorecorder.

2.3. Scoring of behavior

The videotapes of the sessions were analyzed afterwards. Both the behaviors of the NP and NC/DBD children were scored and the exact time of each act was recorded with an accuracy of 0.1 s. Sixteen behavioral elements were identified. Inter-observer reliability of the scoring of the behavioral elements was computed between seven trained observers; Cohen's kappa ranged from 0.70 to 0.85. The elements were categorized into two classes of behavior: 1) aggressive behavior (i.e., behavior aimed at harming or being aversive to people and/or destructing objects), and 2) neutral behavior (see Appendix and Kempes et al., 2008). Within these categories all behavioral elements were correlated to each other; for example, correlations between the aggressive elements scored in the domino game ranged between 0.40 and 0.60. Therefore, further analyses were performed using the behavioral categories.

2.4. Measure of observed unprovoked reactive aggression

Aggressive behavior displayed within 3 s after the peer's behavior was called 'quick' (Kempes et al., 2008). We were specifically interested in the rate of quick aggression in response to neutral behavior of a peer, i.e., unprovoked reactive aggression. For each child unprovoked reactive aggression was calculated as follows: The actual amount of quick aggressive behavior in response to neutral behavior of the peer was divided by the