Journal of Child Psychology and Psychiatry 46:8 (2005), pp 867–880 doi: 10.1111/j.1469-7610.2004.00389.x

Empathy in boys with disruptive behavior disorders

Minet de Wied,[1] Paul P. Goudena,[1] and Walter Matthys[2]

[1]Department of Child and Adolescent Studies, Utrecht University, The Netherlands; [2]Department of Child and Adolescent Psychiatry, and Rudolf Magnus Institute of Neuroscience, University Medical Center Utrecht, The Netherlands

Background: The present study examined empathy in 8- to 12-year-old clinically referred boys with disruptive behavior disorders (DBD) ($n = 25$) and age-matched normal controls ($n = 24$). **Method:** Situational empathy was assessed by children's emotional and cognitive responses to six empathy-inducing vignettes (displaying sadness, anger or happiness). Dispositional affective empathy was measured by a self-report questionnaire for children. **Results:** In line with predictions, results revealed deficits in dispositional and situational empathy among DBD boys, and inverse relationships between both empathy measures and parent-reports of aggressive/disruptive behavior among all children. The study also explored whether DBD boys are less responsive to just any emotion, or to specific emotions. Compared to normal controls, DBD boys responded less empathically to sadness and anger, but equally empathically to happiness. In addition, while DBD boys responded less empathically than the normal controls to each and every sadness vignette, they did *not* show equally low levels of empathic responses to all sadness vignettes. **Conclusions:** These findings suggest that situational factors may be involved in DBD boys' reduced responsiveness to another person's sadness. **Keywords:** Aggression, conduct disorder, disruptive behavior, empathy, schoolchildren. **Abbreviation:** DBD: disruptive behavior disorders.

In clinical practice, children with oppositional defiant disorder (ODD) and conduct disorder (CD) are thought to have little empathy and concern for the feelings and well-being of others. According to DSM-IV (American Psychiatric Association, 1994), the essential features of ODD are a recurrent pattern of negativistic, defiant, disobedient, and hostile behavior toward authority figures, which leads to impairment in social, academic, or occupational functioning. ODD can be a precursor to CD, which is characterized by a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated. Although deficient empathy is listed as an associated feature in CD, no studies have been conducted directly with school-aged ODD/CD children. The aim of the present study is to examine empathy in 8- to 12-year-old clinically referred ODD/CD boys. According to DSM-IV, ODD and CD are also called disruptive behavior disorders (DBD). We will use the term DBD to refer to both ODD and CD.

Empathy, generally defined as the understanding of, and sharing in, another's emotional state (Cohen & Strayer, 1996; Feshbach, 1997; Hoffman, 2000; Snow, 2000), involves the joint operation of both affective and cognitive processes. The affective component of empathy involves the vicarious experience of emotions consistent with those of others. The cognitive component involves understanding another's feelings whether by means of simple associations, or more complex perspective-taking processes.

Empathy may be viewed as a relatively stable disposition (dispositional empathy), but also as a transient affective reaction elicited in concrete situations (situational empathy). Questionnaire measures of empathy (either self- or other-reports) have been used to assess empathic tendencies. In contrast, verbal, facial, or autonomic responses to empathy-inducing stimuli (e.g., slide-stories or video-vignettes), as well as manipulations of observational sets, are generally employed to assess situational empathy (Eisenberg & Fabes, 1990; Strayer & Roberts, 1997; Miller & Eisenberg, 1988). The present study includes both a questionnaire measure of dispositional empathy, and a measure in which situational empathy is assessed in response to emotional events involving others.

Empathy is distinguished from sympathy and personal distress (Eisenberg, 2000; Feshbach, 1997; Hoffman, 2001; Snow, 2000), although the three constructs are closely related and often part of the same complex affective experience. Empathy involves a matching of emotions between the observer and target, i.e., feeling *with* another person. According to Eisenberg and colleagues (Eisenberg, 2000; Eisenberg & Fabes, 1990; Miller & Eisenberg, 1988), empathy may turn into either sympathy (i.e., an other-oriented emotion), or personal distress (i.e., a self-focused emotion), or some combination. Sympathy consists of feelings of sorrow or concern for the target, thus, feelings *for* another person. In contrast, personal distress is an aversive reaction, which may consist of feelings of discomfort or anxiety.

Published by Blackwell Publishing, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA

However, indexes of empathy quite often involve the assessment of emotional matching as well as sympathetic responding and personal distress reactions (Miller & Eisenberg, 1988). The same is true for the two empathy measures included in the present study. Bryant's (1982) Empathy Index was used to assess dispositional affective empathy. This self-report questionnaire for children includes items tapping empathy-related responses rather than pure empathy. Strayer's (1993) Empathy Continuum (EC) scoring system was used to assess children's affective and cognitive responses to emotionally evocative vignettes. Empathic as well as sympathetic responses are generally coded on the EC. In the present study, however, an attempt was made to assess situational empathy and sympathy separately.

The clinical impression that DBD children are less empathic than normal children is given some support by theoretical and empirical evidence suggesting that empathy is inversely related to aggression. Empathy is thought to inhibit aggressive behavior through both cognitive and affective processes (Davis, 1996; Feshbach, 1997; Hoffman, 2000; Miller & Eisenberg, 1988; Staub, 1986). Adopting the perspective of the other person in a conflict situation may lead to a better understanding of the other's position, and prevent aggressive reactions accordingly. In addition, the sharing of the victim's distress may evoke sympathy or personal distress, either of which may inhibit further aggression. Sympathy is associated with the motivation to increase the victim's welfare. In contrast, personal distress is associated with the motivation to alleviate one's own aversive state. Personal distress may also function as an inhibitor when the cessation of aggression is the quickest way to escape the vicarious distress.

Research has provided empirical support for an inverse relationship between aggression and both cognitive and affective empathy. However, the evidence seems stronger for questionnaire measures of dispositional empathy than for indexes of situational empathy.

Miller and Eisenberg (1988) have reviewed studies on the relationship between affective empathy and aggression. In their meta-analytic review, they examined studies that employed measures of situational empathy and measures of dispositional empathy separately. Results revealed a significant inverse relationship between aggression and questionnaire measures of dispositional empathy, but nonsignificant relationships for indexes of situational empathy. The results were found in studies that used both normal samples and those with externalizing individuals. Age differences possibly account for these findings, as stated by the authors, because questionnaire measures of dispositional empathy were most frequently used with adolescents and adults. Recent studies confirm the link between dispositional affective empathy and aggression among adolescents (Kaukiainen et al., 1999), but also among children (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000).

In his discussion on role-taking and aggression, Davis (1996) noted that most research has focused on dispositional role-taking. The role-taking studies, summarized by Davis, evidence a negative relationship between dispositional role-taking and aggression, in particular with pathological aggression. Richardson and colleagues (Richardson, Green, & Largo, 1998; Richardson, Hammock, Smith, Gardner, & Signo, 1994), however, demonstrated that both dispositional and situation-induced role-taking might reduce aggression in normal samples, especially under conditions of moderate provocation. No such effects were observed with either low or high levels of provocation.

Of particular interest, Cohen and Strayer (1996) demonstrated deficits in dispositional affective and cognitive empathy, as well as in situation-induced affective and cognitive empathy among adolescents with CD. Bryant's (1982) Empathy Index was used to assess dispositional affective empathy. Davis' (1983) IRI Perspective Taking Scale was used to assess dispositional cognitive empathy. CD adolescents obtained lower scores on both measures of dispositional empathy relative to normal controls. Moreover, Strayer's (1993) Empathy Continuum (EC) scoring system was used to assess situational (affective–cognitive) empathy. Respondents were exposed to seven video-vignettes portraying different emotions, such as sadness, happiness, fear, surprise, or anger. Group differences were examined in overall EC scores (i.e., affective–cognitive responses across vignettes), the EC affective component (i.e., concordant emotional responses), and the EC cognitive component (both emotion identification, and cognitive attributions of one's own concordant emotional responses). Compared to normal controls, CD adolescents obtained lower overall EC scores, reported fewer concordant emotional responses, showed greater deficits in emotion identification, and received lower cognitive-level scores. In addition, results revealed an inverse relationship between the measures of dispositional and situational empathy on the one hand, and self-report measures of aggressive and maladjusted attitudes on the other.

The present study seeks to extend these findings to school-aged boys with DBD, using Bryant's Empathy Index to assess dispositional affective empathy, and Strayer's EC scoring system to assess situational (affective–cognitive) empathy. Six vignettes were assembled for use in the current study; three displaying sadness, two happiness, and one displaying anger. Different from Cohen and Strayer's study, where both empathic and sympathetic responses were coded on the EC, only empathic responses were coded on the EC in the present study. Sympathetic responses to the vignettes were

assessed using a separate rating-scale. Thus, both types of affective responses (empathy and sympathy) were examined. However, dispositional and situational empathy in DBD boys and normal controls are the main focus of the present study.

Based on theory and empirical studies, we expected to find lower scores for DBD boys (relative to the normal controls) on the Empathy Index, the Empathy Continuum, and the sympathy scale. In addition, lower scores were predicted for DBD boys (relative to normal controls) on both the affective and cognitive components of the Empathy Continuum. Furthermore, parent-, and teacher-reports of aggressive/disruptive behavior were assessed to examine the relationships among empathy, sympathy, and aggressive/disruptive behavior. We expected to find inverse relationships between the Empathy Index (dispositional empathy), the Empathy Continuum (situational empathy), and the sympathy scale on the one side, and both measures of aggressive/disruptive behavior on the other.

Two additional issues will be addressed in the present study. The first involves possible differences in empathic responding to specific emotions. Results obtained in studies with healthy children (Eisenberg et al., 2001; Feshbach, 1982; Zhou et al., 2002) suggest that empathy with negative emotions relates differently to prosocial and aggressive behaviors than empathy with positive emotions, at least for boys. Using verbal responses to emotion-inducing video-vignettes, Feshbach (1982) demonstrated that boys who empathized strongly in dysphoric situations (i.e., sadness, fear and anger) were rated by their teachers and peers as low aggressive, and were more likely to show helping behavior. In contrast, boys who empathized strongly in euphoric situations (i.e., happiness and pride) were rated by their teachers and peers as antisocial and aggressive. Eisenberg et al. (2001) showed that emotional expressivity to negative slides (but not to positive slides) relates negatively to externalizing behaviors for boys. Using similar measures, Zhou et al. (2002) demonstrated stronger relationships between empathy and social functioning for empathy with negative emotions than for empathy with positive emotions.

While these studies focused on the distinction between positive and negative emotions, Blair and Coles (2000) have used a range of emotional expressions to examine the relationship between the processing of affective cues and antisocial behavior problems in school-aged children. Boys and girls (in mainstream education) viewed morphed images of happy, angry, sad, disgusted, fearful and surprised faces, and were asked to name the expression being displayed. Results indicated that children who show behavioral problems (as indexed by the PSD: Psychopathy Screening Device) have particular difficulties in recognizing sad and fearful expressions. Children's level of behavioral problems was not related to the ability to recognize the facial expressions of anger, disgust, happiness or surprise. Blair and Coles proposed that such difficulties in the processing of affective cues might extend to other factors involved in the empathy process, suggesting that children with antisocial behavior problems may be particularly less emotionally responsive to another person's sadness or fear.

To our knowledge, no studies have examined empathic responses in DBD children to specific emotions. The present study explored empathic responses to sadness, anger and happiness in DBD boys and normal controls. Explorations centered on the question whether DBD boys are less emotionally responsive to both negative (sadness and anger) and positive (happiness) emotions displayed by other persons, or whether they show a selective impairment in empathy with negative emotions, especially with sadness.

A second issue concerns the *level* of impairment in empathic responses to other persons' distress. Evans, Heriot, and Friedman (2002) recently argued that children with DBD show inhibited empathy, rather than that they completely lack the capacity of feeling empathy. The inhibition of empathy may occur for a variety of reasons. One such reason may be that DBD children tend to interpret social cues in ways that are likely to elicit feelings of threat or anger (Evans et al., 2002; Miller & Eisenberg, 1988; Staub, 1986). The tendency to misperceive the intentions of others as more hostile and threatening than is the case is listed as an associated descriptive feature in the DSM-IV (APA, 1994), and given empirical support by studies demonstrating that aggressive children are inclined to make hostile attributions (Dodge & Somberg, 1987; Orobio de Castro, Veerman, Koops, Bosch, & Monschouwer, 2002). Furthermore, empathy is found to depend on the relationship between the observer and target (Lanzetta & English, 1989; Zillmann, 1991), such that positive relationships facilitate empathy, whereas negative relationships inhibit empathy. Accordingly, it is quite possible that DBD children respond less empathically, not because these children lack the capacity for empathy, but because their negative attitude towards others precludes empathic responding.

To explore this issue, three sadness vignettes were selected. Two vignettes portrayed either a girl or a boy experiencing a sad event. The third vignette displayed a cute little bear in distress after his mother dies while they were searching for food. The bear-vignette was thought to promote empathy, not only because of its theme, but more so because cute little animals are likely to evoke strong positive feelings in children (Endenburg, 1995), which would minimize possible confounding influences of negative dispositions. We compared empathic responses evoked by the bear-vignette with those evoked by the other two sadness vignettes. The position that DBD children lack the capacity for empathy predicts that DBD boys will show equally low levels of empathy to all three sadness vignettes. However, enhanced

empathic responding to the bear-stimulus in DBD boys would provide evidence for the position that DBD children do not completely lack empathic skills.

Method

The Medical Ethical Committee of the University Medical Center Utrecht approved the study protocol, and parents gave written informed consent prior to participation.

Participants

In the present study only boys were included because DBD is more prevalent among boys than girls. The DBD group ($n = 25$) consisted of 8- to 12-year-old boys who had met the criteria for ODD or CD as set out in the DSM-IV. Since ODD and CD are highly related (Lahey, Loeber, Quay, Frick, & Grimm, 1992), no distinction was made between participants who fulfill the criteria for one or both of these categories. The DBD group was recruited from inpatient ($n = 12$) and day-treatment ($n = 12$) units of the Department of Child and Adolescent Psychiatry, University Medical Center Utrecht. One participant came from a special school for children with severe behavioral disorders. Of the 30 parents and children who were approached for participation, 5 withheld consent.

Clinical diagnoses of all DBD boys were based on extensive semi-structured psychiatric interviews, psychological assessment of the child, interviews with the parents including discussion of the developmental history, and information from the child's teacher. The clinical diagnosis was checked by the Diagnostic Interview Schedule for Children (DISC-IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). Except for the parents of three children who could not be interviewed at the time, all parents of the participating children were interviewed to collect DISC data by trained graduate educational students. The DISC confirmed the clinical DBD diagnoses in 96% of all checked cases. The DISC also confirmed the comorbid clinical diagnoses of attention deficit-hyperactivity disorder (ADHD; $n = 9$). In total, 14 DBD boys were on psychopharmacological treatment, specifically on methylphenidate ($n = 9$) or risperidone ($n = 5$).

Age-matched normal control boys (NC; $n = 30$) were recruited from regular elementary schools in the vicinity of Utrecht. In total, 39 parents and children were informed about the study by an informing letter that was sent out by the teachers. The parents of 9 children withheld consent. To control for behavior problems, the parents of the participating children were subjected to the DISC. In addition, the Child Behavior Checklist (CBCL; Achenbach 1991a), and the Teacher's Report Form (TRF; Achenbach, 1991b), in the Dutch translation (Verhulst, van der Ende, & Koot, 1996, 1997), were completed by each child's parents and teachers. Exclusion criteria for NC boys were: (1) a DISC diagnosis of ODD or CD, and/or (2) scores on both the CBCL and TRF in the clinical range for Total Behavior Problems ($T > 63$). Conforming to these criteria, the data of six NC boys were excluded from further analyses. None of the NC boys were on psychopharmacological treatment.

The parents and teachers of the participating DBD boys also completed the CBCL and TRF. The CBCL and TRF aggression scales (tapping disruptive behavior, including physical aggression) were used as measures of aggressive/disruptive behavior. Because both scales assess disruptive behavior rather than aggressive behavior, we will use the term aggressive/disruptive behavior to refer to this scale in the present study. The CBCL and TRF Total Behavior Problem *T* scores, as well as the externalizing *T* scores were used to confirm the presence of group differences. Furthermore, to match the two groups of children on IQ, the NC boys completed two subtests of the Wechsler Intelligence Scale for Children-Revised (WISC-R; Wechsler, 1974), namely Vocabulary and Block design. These subtests have a correlation of .90 with the full-scale intelligence quotient (Sattler, 1992). Full-scale IQ data of all DBD boys were collected as part of the screening procedure at intake. All participants included in the study received IQ scores >80.

Descriptive characteristics of the sample are included in Table 1. In the interest of completeness of reporting on the sample, the table also includes CBCL and TRF internalizing behavior, delinquent behavior, anxious/depressed and attention problem scores. To examine differences between groups, the data were subjected to independent-samples *t*-tests. The statistical analyses revealed no age differences, nor differences in intelligence between DBD boys and normal controls. The *t*-tests performed on the CBCL and TRF Total Behavior Problem *T* scores and the externalizing *T* scores demonstrated expected differences between groups, such that DBD boys obtained much higher scores on total behavior problems and externalizing behavior than normal controls.

Materials and measures

Relaxation video: When multiple emotion-inducing vignettes are employed within one experimental session, it is important to ensure recovery between two consecutive vignettes. For that purpose, children viewed 1-min excerpts from a relaxing aquatic video prior to each vignette. We used excerpts from the aquatic video *Coral Sea Dreaming* (Small World Music, Inc.). The same video has been used in a study conducted by Piferi, Kline, Younger, and Lawler (2000), who demonstrated greater recovery after mental tasks when watching the relaxing video than when resting quietly. Furthermore, to control for possible effects of anticipation, participants viewed a 5-min segment from the same relaxing video prior to the empathy task.

Vignettes: Six stimulus vignettes were used to evoke children's empathic responses within a laboratory setting. The vignettes were assembled from documentary films (broadcast by the Dutch public broadcasting companies), and from commercial films. Seven pilot vignettes were selected showing a boy or girl involved in common childhood situations related to the experience of sadness, anger or happiness. The vignettes were pretested on 48 children (7- to 12-year-olds) who were asked to identify the emotions conveyed by the protagonist during the most dramatic part of the vignettes. Five vignettes were selected depicting one prominent

Table 1 Comparisons of groups: means and standard deviation scores

	DBD ($n = 25$)		NC ($n = 24$)		t-values ($df = 47$)
	M	*SD*	*M*	*SD*	
Age	10.16	1.37	10.13	1.26	−.09
IQ CBCL	99.20	12.26	104.04	13.32	1.33
Total Problems	74.64	6.03	52.33	8.03	−11.03***
Externalizing	76.16	7.62	47.21	10.14	−11.33***
Aggressive/disruptive behavior	79.68	10.30	52.67	3.47	−12.20***
Delinquent behavior	71.52	7.47	53.04	4.69	−10.32***
Internalizing	70.12	7.69	55.29	8.76	−6.31***
Anxious/Depressd	71.48	8.88	56.75	6.50	−6.60***
Attention problems	69.36	10.00	54.25	5.95	−6.39***
TRF[1]					
Total Problems	68.84	7.37	42.78	12.97	−8.64***
Extrnalizing	69.80	7.32	46.61	10.68	−8.83***
Aggressive/disruptive behavior	70.24	8.06	53.26	5.29	−8.55***
Delinquent behavior	66.60	7.89	53.57	5.52	−6.58***
Internalizing	64.64	7.60	45.48	9.07	−7.96***
Anxious/Depressed	65.04	9.14	52.35	4.79	−5.95***
Attention problems	61.56	7.62	52.30	4.60	−5.04***

[1] $df = 46$ (TRF scores were missing of one respondent in the NC group).
*** $p < .0001$.

emotion agreed upon by more than 80% of the children. All vignettes showed the story character's facial and verbal emotional reactions in close-up during the most dramatic part. One additional vignette, portraying a little bear losing his mother, was selected by a panel of ten researchers and children. In total, six vignettes were used in the present study. Sadness was the prominent emotion in three vignettes, happiness in two, and anger was the major emotion in one vignette. However, more than one emotion could be correctly identified in the anger and sadness vignettes. Brief descriptions of the six vignettes are presented in Table 2.

Computerized presentation of the vignettes, questions and answers: The vignettes were digitized and presented (in randomized order) on a 17-inch computer screen (ILYAMA A705MT). A program written with *Authorware 5 Attain* was used to control the presentation of the instructions and the vignettes. The program was also used to collect children's responses. Following a 1-min excerpt of the aquatic video, the vignette's title (i.e., the name of the stimulus person) appeared on the computer screen. A voice-over sketching the situation introduced the vignette. After each vignette was viewed, the children were asked (a) to identify the quality and intensity of the emotions of the protagonist and (b) to report the quality and intensity of emotions they had experienced themselves the moment the protagonist expressed his or her emotions. When the child reported that he had experienced one (or more) emotion(s), he was asked (c) why he had felt the emotion(s) reported.

Once the children were asked about the *quality* of the (observed/experienced) emotions, five cartoon-figures were presented on the computer screen, portraying the bodily (including facial) expression of sadness, happiness, anger or fear. One additional (neutral) figure expressed no feelings. Identification was established by marking one or more figures through a mouse click. When they were asked about the *intensity* of the (observed/experienced) emotions, four squares growing in size were presented on the computer screen. The smallest square was labeled 'a little', the second smallest 'quite a bit', the second largest 'considerable', and the largest square 'very much'. Identification was established by marking one of the squares.

Situational empathy: We adopted the Empathy Continuum (EC) scoring system developed by Strayer (1993). The computerized procedure, developed in our laboratory to assess children's affective–cognitive responses to emotional events, involved the following two modifications. First, only empathic responses were assessed, i.e., a precise verbal match between observed and experienced emotions. Second, in the present study intensity ratings were assessed on a 4-point scale. Because Strayer's procedure employs a 2-point intensity scale, the ratings were converted to a 2-point scale (1 = a little/quite a bit; 2 = considerable/very much), for coding children's responses on a 3-point 'affect match' scale, with 0 = no emotion, 1 = same emotion, different intensity, and 2 = same emotion, same intensity.

In agreement with Strayer's procedure, children's responses were further coded on an 8-point cognitive scale, assessing both the absence of an affect match (0–1) and six codes for its presence (2–7). For example, the attribution 'I felt sad because Anja was pestered' refers to SP's specific situation (cognitive level score = 4), whereas 'I felt sad because I have been pestered myself' indicates association to own experience (cognitive level score = 5). Table 3 shows the way in which the affect match and cognitive attributions were integrated to yield Empathy Continuum scores ranging from 0–13. Coders were trained in the use of the EC scoring system according to the *Empathy Continuum Scoring Manual* (Strayer & von Rossberg-Gempton, 1992). Two pairs of judges coded EC responses across the six vignettes. They were unaware of the child's status. Inter-scorer reliabilities for the cognitive-level scores ranged from Cohen's kappa = .87 to 1. Intercorrelations for the EC scores ranged from $r = .95$ to 1.

Each vignette generated three scores: An Empathy Continuum (EC) score, reflecting children's affective–cognitive responses (0–13), an EC affect match score

Table 2 Description of the stimulus vignettes

	Title	Description
1.	Anja	A young girl (Anja) gives an interview about her sad experiences at school, where she is being ignored and badgered by her classmates. She is feeling depressed, and starts to cry. SOURCE: documentary PROMINENT EMOTION: sadness (anger). TOTAL RUNNING TIME: 57 s
2.	Damir	Left all alone in the classroom, a little boy (Damir) weeps bitterly over his father who is leaving for work in Germany. His teacher tries to comfort him, but the boy is beyond all consolation. SOURCE: documentary PROMINENT EMOTION: sadness. TOTAL RUNNING TIME: 61 s
3.	Bear	A little bear and his mother are shown in a rocky area. Surrounded by buzzing honeybees, they both enjoy their meal of wild honey. While the mother reaches out for more, a huge boulder comes down, killing her on the spot. The little bear tries to remove the boulder without success. He stays with her, moaning quietly. SOURCE: feature film PROMINENT EMOTION: sadness (fear). TOTAL RUNNING TIME: 256 s
4.	Mari	A young ambitious male cyclist (Mari) is shown preparing himself for a significant cycle race. He will race against his sister, who is also an ambitious cyclist. During the race she pushes him aside. He is shown on the verge, furious with his sister, and sad about losing the race. SOURCE: documentary PROMINENT EMOTION: anger (sadness). TOTAL RUNNING TIME: 158 s
5.	Valentijn	On a class trip to the woods, a young boy (Valentijn) catches a butterfly which he wants to bring home as a present for his father. The strict teacher condemns his deed, and takes the butterfly away. On their way home, the boy is shown in the bus sulking about his lost treasure, when a young assistant gives him a little box (containing his butterfly). He smiles when he opens it. SOURCE: feature film PROMINENT EMOTION: happiness. TOTAL RUNNING TIME: 108 s
6.	Igor	A young male tennis player (Igor) and his mother are interviewed about his ambition to become a professional tennis player. They are shown at home, at the tennis court, and eventually during a tennis tournament. When he wins a significant game, they are both very happy. SOURCE: documentary PROMINENT EMOTION: happiness. TOTAL RUNNING TIME: 106 s

Table 3 The modified Empathy Continuum (EC) scoring system

EC Score	Cognitive level	Affect match	Affect match for S and SP*	Emotional attribution
0	0	0	No emotion for SP	No affect match requiring attribution
1	1	0	Accurate SP emotion	
2	2	1	Same emotion S-SP, different intensity	No attribution or irrelevant attribution.
3		2	Same emotion S-SP, same intensity	
4	3	1	As above in this column	Attribution based on events only.
5		2		
6	4	1	As above	Attribution refers to SP's specific situation.
7		2		
8	5	1	As above	Attribution indicates association to own experience.
9		2		
10	6	1	As above	Attribution indicates responsiveness to SP's internal
11		2		state (feelings or thoughts)
12	7	1	As above	Attribution indicates explicit role-taking
13		2		

Note If more than two emotions were mentioned, the emotion experienced most strongly was scored on the continuum.
*S = Subject; SP = Stimulus person.

(0–2), and an EC cognitive-level score. According to the EC scoring system, a cognitive-level score <2 was assigned when no affect match was reported, which required no further attribution (see Table 3). Because scores <2 are meaningless with respect to the cognitive attributions of emotions, statistical analyses were performed on the EC cognitive level scores ranging from 2–7.

Situational sympathy: Following the questions on empathy, the children were asked whether they felt sorry (yes/no) for the protagonist after viewing the sadness or anger vignettes, or whether they felt happy (yes/no) for the protagonist after viewing the happiness vignettes. Two boxes appeared on the screen, one labeled 'yes' and one labeled 'no'. The children were asked to click one of the boxes. When they indicated yes, they were asked to specify how much they felt sorry (or happy) for the protagonist. Four squares growing in size were presented on the screen (the same four squares and labels were used as those described earlier). Identification was established by marking one of the squares through a mouse click. The binary (yes/no) responses and the 4-point intensity ratings were scored

on a 5-point sympathy scale, ranging from 0 (not at all) to 4 (very much).

Dispositional empathy: The Empathy Index for Children and Adolescents (Bryant, 1982) was used to assess empathic tendencies. The 22-item questionnaire, derived from Mehrabian and Epstein's (1972) adult measure of dispositional empathy, is designed to assess affective empathy. However, the items tap a range of affective reactions, including emotional matching (e.g., 'Seeing a (girl/boy) crying makes me feel like crying'), sympathy (e.g., 'It makes me sad to see a (girl/boy) who can't find anyone to play with'), normative judgments and attitudes (e.g., 'People who kiss and hug in public are silly' and 'It's silly to treat dogs and cats as though they have feelings like people'). Although the questionnaire seems to involve the assessment of empathy-related responses, rather than pure empathy, we will use the term empathy in referring to the Empathy Index in the present paper.

Bryant (1982) has demonstrated satisfactory test–retest reliability, and construct validity of the Empathy Index. The present study used the Empathy Index in a Dutch translation, with the child two-point (yes–no) response format; children were asked to agree or disagree with each of the 22 statements. Empathic answers were assigned the value 1, non-empathic answers the value 0. For each subject, a total-list score was computed by counting up the 22 item scores (0–22). Higher scores reflect higher levels of dispositional empathy.

Procedure

Participants were seen individually by one of four female experimenters. The experimenters were trained and received a written protocol detailing, for instance, the verbal instructions, preparations for the interviews, and how to demonstrate the computerized empathy task. All participants were told that we were interested in children's reactions to persons and animals experiencing emotional events. They were also told that they would fill out a questionnaire with the help of the experimenter, and that they would view six short film clips about which several questions would be asked. The test session was held in a dimly lit room at the inpatient clinic, equipped with a personal computer and tape recorder. Prior to the test session, NC boys completed the two WISC-R subtests in a separate room. Upon completion, the participant was guided to the test room, where he was seated at a table facing the computer monitor at approximately 80-cm distance.

First, the empathy questionnaire was administered. The experimenter read the 22 items aloud, and entered the child's answers on the sheet. Next, the participants watched the 5-min relaxing aquatic video. After that, the experimenter demonstrated the computerized empathy task. The participant was shown a practice vignette (70 s) about a boy who fears his visit to the school doctor for a vaccination. After presentation, all questions were passed through. The experimenter read each question aloud, named the labels that were associated with the icons, showed how to mark the icons through a mouse click, and how to restore wrong entries if necessary. Upon completion, this routine (i.e., questions and answers) was rerun. Participants were handed the computer mouse and asked to demonstrate how they would have answered all the questions. This was done to familiarize the children with the procedure.

Once familiar with the setting and procedure, the test session was started, which took about 45 minutes to complete. During vignette presentation the experimenter remained in the same room, beyond the participant's scope of vision. After each vignette, the experimenter handed the computer mouse to the participant, and read the questions aloud. When the participant indicated that he had experienced an emotion, the experimenter asked why he had felt the emotion reported. The answers were recorded on tape. Upon completion, the participant was thanked for his cooperation, and given a little present.

Results

Prior to conducting the main analyses of the study, all empathy measures were subjected to independent-samples *t*-tests (two-tailed) comparing DBD boys who were on medical treatment with DBD boys who were not; DBD boys with and without ADHD; and DBD boys from inpatient units with those from day-treatment units. No significant differences emerged on any of the empathy measures (all p's > .1). Therefore, the scores of all DBD subjects were collapsed in all subsequent analyses.

Next, we examined the relationships among the measures of dispositional empathy (Empathy Index), situational empathy (Empathy Continuum) and situational sympathy. For each respondent, a total EC score was computed by averaging the EC (affective–cognitive) scores across the six vignettes. Similarly, a total sympathy score was calculated for each respondent by averaging the sympathy scores across the six vignettes. The EC scores for each vignette had sufficient comparability ($\alpha = .71$). The sympathy scores showed weak comparability ($\alpha = .51$), however, so caution is warranted in interpreting the results on the total sympathy score. The means and standard deviations of the empathy and sympathy scores are presented in Table 4.

Pearson product–moment correlations (two-tailed) were computed for the entire sample. The Empathy Index was positively associated with the total EC score (r (49) = .26, $p = .07$), although the analysis did not reach full statistical significance. The Empathy Index was not related to the total sympathy score (r (49) = .07, *n.s.*). These findings suggest that boys who show more dispositional empathy also tend to experience more empathy (but not sympathy) when exposed to vignettes displaying children in emotional situations. Furthermore, a significant positive relationship was obtained between the total EC and total sympathy scores (r (49) = .43, $p < .001$). The moderate correlations between the current measures of situational empathy and situational sympathy suggest that they are tapping related but not identical variables.

Table 4 Means and standard deviations of the empathy and sympathy measures

	DBD ($n = 25$)		NC ($n = 24$)	
	M	*SD*	*M*	*SD*
Empathy Index	10.96	2.84	12.50	2.75
Total EC	3.01	2.11	4.58	1.95
EC-sadness				
Anja	1.80	2.25	4.92	3.39
Damir	2.28	2.88	4.50	3.18
Bear	4.68	3.60	6.38	2.89
EC-anger				
Mari	3.36	2.50	3.92	3.86
EC-happiness				
Valentijn	2.88	2.95	3.92	3.71
Igor	4.04	3.42	3.88	3.01
Total Sympathy	2.63	.65	2.81	.53
Sympathy-sadness	2.83	1.01	2.96	.75
Sympathy-anger	1.88	1.36	2.48	.97
Sympathy-happiness	2.72	.94	2.69	.70

Group differences on the Empathy Index

Lower Empathy Index scores were predicted for DBD boys relative to NC boys. An independent-samples *t*-test (one-tailed) yielded a significant difference between groups ($t\,(47) = 1.93$, $p = .03$). Mean scores, displayed in Table 4, show that DBD boys obtained lower scores than the normal controls on the Empathy Index.

Group differences on the Empathy Continuum

For each respondent, mean EC (affective–cognitive) scores were calculated for the three sadness vignettes and the two happiness vignettes. Together with the EC scores for the anger vignette, the scores served as the dependent variables in a multivariate analysis of variance (MANOVA), with groups as the between-subjects factor.[1] Using the Wilks' Lambda criterion, the analysis revealed a significant main effect for groups ($F\,(3,45) = 4.23$, $p = .01$), supporting expected group differences. DBD boys obtained lower EC scores across vignettes than the normal controls. Follow-up ANOVAs (one-tailed) revealed significant differences between groups for sadness ($F\,(1,47) = 12.06$, $p = .001$) and anger ($F\,(1,47) = 2.84$, $p = .05$), but not for happiness ($F < 1$). As seen in Figure 1, the sadness and anger vignettes evoked lower levels of empathy in DBD boys than in NC boys. No noticeable difference between groups emerged for the happiness vignettes. These findings

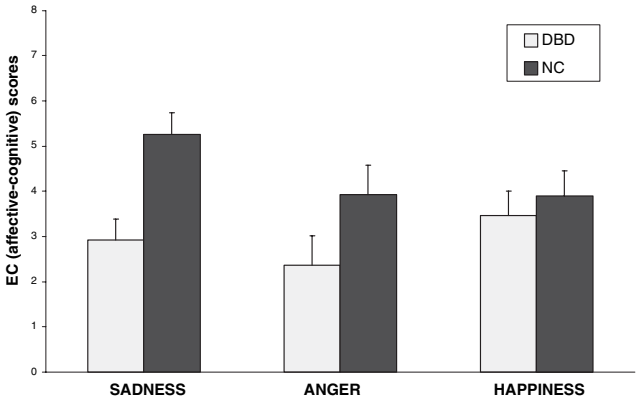

Figure 1 Mean Empathy Continuum scores for DBD and NC boys across the sadness, anger and happiness vignettes

suggest that DBD boys have particular difficulties in sharing another person's sadness and anger.

Between-groups differences were further analyzed through the use of one-way ANOVAs (one-tailed). The analyses yielded significant differences between groups for each sadness vignette, i.e., Anja ($F\,(1,47) = 14.49$, $p < .0001$), Damir ($F\,(1,47) = 6.58$, $p = .005$), and Bear ($F\,(1,47) = 3.29$, $p = .04$). Table 4 shows that DBD boys received lower EC scores than the normal controls on all sadness vignettes. Within-groups differences across the three sadness vignettes were analyzed using a repeated measures ANOVA, with groups as the between-subjects factor. The analysis yielded a significant main effect for vignettes ($F\,(2,46) = 10.99$, $p < .0001$) and groups ($F\,(1,47) = 12.06$, $p = .001$), but no significant interaction ($F\,(2,46) = 1.19$, *n.s.*). The predicted contrasts, that the bear vignette would evoke stronger empathic reactions than both vignettes with children, were confirmed by tests of within-subjects contrasts; Bear versus Anja ($F\,(1,47) = 19.74$, $p < .0001$) and Bear versus Damir ($F\,(1,47) = 16.84$, $p < .0001$). No significant difference emerged between the two vignettes with children, i.e., Anja versus Damir ($F < 1$).

The EC affect match scores

For each respondent, the total number of affect matches reported (affect match score = 1 or 2) was summed across the six vignettes. NC boys reported an affect match more often than the DBD boys: 75% of the NC boys, against 40% of the DBD boys, reported affect matches on two or more vignettes. The sum-totals (range = 0–6) were subjected to an independent-samples *t*-test (one-tailed), revealing a significant difference between groups ($t\,(47) = 3.19$, $p = .002$). As predicted, DBD boys ($M = 2.16$, $SD = 1.80$) reported, on average, fewer affect matches across vignettes than did the NC boys ($M = 3.66$, $SD = 1.49$).

The distribution of affect matches across the sadness, anger, and happiness vignettes were further

[1] The EC scores were checked for skewness and kurtosis. Except for the EC-anger scores (skewness = 1.33), the skewness values of the relevant EC scores fell within the range of 0 to 1, indicating that the distribution was not substantially skewed. The kurtosis values indicated a relatively peaked distribution for the EC-anger scores, and relatively flat distributions for all other relevant EC scores.

analyzed through the use of chi-square tests. Similar to the above findings regarding boys' EC scores, the analyses demonstrated a significant difference in the pattern of frequencies for sadness (χ^2 (3, $N = 49$) = 15.03, $p = .002$), and no significant difference for happiness (χ^2 (2, $N = 49$) = 1.56, *n.s.*). No significant difference emerged, however, for anger (χ^2 (1, $N = 49$) = 2.58, *n.s.*). Across the three sadness vignettes, 32% of the DBD boys reported no affect matches, while *all* normal controls reported at least one (or more). In the anger vignette, 24% of the DBD boys, against 46% of the normal controls, reported an affect match. Across the two happiness vignettes, more than half of the subjects in both groups reported affect matches, i.e., 56% of the DBD boys and 70% of the normal controls.

Emotion identification and EC cognitive level scores

In both groups all participants correctly identified the emotion of the stimulus person in the anger and sadness vignettes. The protagonist's emotion in the two happiness vignettes was correctly identified by most participants (>80%) in both groups. No significant differences in emotion identification were observed between groups on either of the happiness vignettes ($\chi^2 < 1$).

Because DBD boys reported significantly fewer affect matches than the normal controls, and an affect match was a prerequisite for getting a score on the attribution scale, there were not enough observations for DBD boys to allow meaningful statistical analyses of the cognitive attribution scores. As the exclusion of low scores would bias the results, the cognitive attribution scores were not subjected to statistical analyses.

Group differences on the sympathy scores

For each respondent, mean sympathy scores were calculated for the three sadness vignettes and the two happiness vignettes. The means and standard deviations of the sympathy scores for sadness, happiness, and anger are presented in Table 4. These three sympathy scores were included as the dependent variables in a multivariate analysis of variance (MANOVA), with groups as the between-subjects factor. Using the Wilks' Lambda criterion, the analysis revealed no significant effect for groups ($F(3,45) = 1.38$, *n.s.*).

Additional analyses were performed on the binary (yes/no) data. For each respondent, the yes-responses (indicating empathic concern) were summed across the six vignettes. The sum-totals (range 0–6) were subjected to an independent-samples *t*-test (one-tailed). The test revealed a significant difference between groups (t (47) = 2.25, $p = .02$), indicating that DBD boys ($M = 5.32$, $SD = .90$) reported, on average, less often that they felt sorry or delighted for the protagonist than the normal controls ($M = 5.79$, $SD = .51$). Chi-square tests further revealed significant differences in the distribution of frequencies between groups for the sadness and anger vignettes, such that fewer DBD boys than normal controls felt sorry for the protagonists in the three sadness (χ^2 (2, $N = 49$) = 6.56, $p = .04$) and anger (χ^2 (1, $N = 49$) = 3.94, $p = .05$) vignettes. No significant difference between groups emerged across the two happiness vignettes ($\chi^2 < 1$). Across the three sadness vignettes, 76% of the DBD boys, against 100% of the NC boys, reported that they felt sorry for all three protagonists. In addition, 76% of the DBD boys, against 96% of the NC boys, reported that they felt sorry for the protagonist in the anger vignette. Most DBD boys (88%) and NC boys (83%) reported that they felt happy for both protagonists in the happy vignettes.

Relationships among empathy, sympathy and aggressive/disruptive behavior

To examine the relationships among the measures of empathy, sympathy and aggressive/disruptive behavior, Pearson product–moment correlations were computed for the entire sample (see Table 5). All significance levels for the correlations were two-tailed, regardless of whether the direction of the findings was hypothesized. The CBCL aggressive/disruptive behavior scale correlated significantly ($p < .05$) with total EC ($r = -.29$), and the Empathy Index ($r = -.32$), but not with total sympathy ($r = -.11$). A marginal significant correlation was obtained between the TRF aggressive/disruptive behavior scale and the Empathy Index ($r = -.27$, $p = .06$). No significant correlations ($p > .1$) emerged, however, for TRF aggressive/disruptive behavior with total EC ($r = -.19$), nor for TRF aggressive/disruptive behavior with total sympathy ($r = -.09$). In sum, significant inverse relationships were established for parent-reports of aggressive/disruptive behavior and both measures of dispositional and situational empathy. The inverse relationship between teacher-reports of aggressive/disruptive behavior and dispositional empathy did not reach full significance. No significant relationship emerged between teacher-reports of aggressive/disruptive

Table 5 Correlations among the measures of empathy, sympathy and aggressive/disruptive behavior

	CBCL aggressive/ disruptive ($df = 49$)	TRF aggressive/ disruptive ($df = 48$)
Empathy Index	−.33*	−.27
Total EC	−.29*	−.19
EC-sadness	−.38*	−.26
EC-anger	−.16	−.00
EC-happiness	−.05	−.07
Total Sympathy	−.11	−.21
Sympathy-sadness	−.01	−.09
Sympathy-anger	−.30*	−.26
Sympathy-happiness	.01	−.11

*$p < .05$.

behavior and situational empathy. Furthermore, sympathy was not associated with either teacher- or parent-reports of aggressive/disruptive behavior.

We also explored the relationships between both measures of disruptive behavior and the EC scores for sadness, happiness and anger. A significant negative correlation was obtained for EC-sadness with CBCL aggressive/disruptive behavior ($r = -.38$, $p < .05$), and a marginal significant negative correlation for EC-sadness with TRF aggressive/disruptive behavior ($r = -.26$, $p = .08$). However, weak and nonsignificant relationships emerged for EC-happiness and EC-anger with both measures of aggressive/disruptive behavior (see Table 5). These findings indicate that empathic reactions to sadness (but not to anger or happiness) are inversely related to aggressive/disruptive behavior.

As to the relationships between aggressive/disruptive behavior and sympathy with specific emotions, the results revealed a significant inverse relationship between CBCL aggressive/disruptive behavior and sympathy–anger ($r = -.30$, $p < .05$). No other significant relationships were obtained between measures of aggressive/disruptive behavior and sympathy with sadness, anger or happiness (see Table 5).

Discussion

The present study examined empathy in 8- to 12-year-old clinically referred DBD boys and normal controls. In line with predictions, DBD boys were found to be less empathic than NC boys. Of primary interest were group differences in dispositional affective empathy and situational affective–cognitive empathy. Group differences were established for both empathy measures. Compared to the normal controls, DBD boys obtained significantly lower scores on Bryant's (1982) questionnaire measure of dispositional affective empathy. Similarly, DBD boys' overall Empathy Continuum scores (i.e., their affective–cognitive responses to six empathy-inducing events) were significantly lower than those of normal controls. Separate analyses of the affective versus cognitive responses further indicated significant group differences in the affective component. As predicted, DBD boys reported significantly fewer concordant emotional responses than the normal controls. Contrary to expectations, no significant difference emerged in emotion identification. Because of statistical limitations of the data set, the cognitive attribution scores could not be analyzed.

In addition to examining group differences in empathy, the present study examined the relationships between empathic responses and children's aggressive/disruptive behavior. In agreement with previous research, results demonstrate significant inverse relationships between parent-reports of aggressive/disruptive behavior and measures of both dispositional and situational empathy. A marginal significant negative relationship was established between teacher-reports of aggressive/disruptive behavior and dispositional empathy. No significant relationship emerged, however, for teacher-reports of aggressive/disruptive behavior with situational empathy.

The overall pattern of results is consistent with the findings obtained by Cohen and Strayer (1996). Their study demonstrated similar deficits in dispositional and situational empathy among CD adolescents, and inverse relationships between both empathy measures and self-reported aggressive and socially maladjusted attitudes. Cohen and Strayer also provided evidence for greater deficits in emotion identification among CD youth as compared to normal controls. No such difference was observed in the present study with children. Most (if not all) respondents in the DBD and NC groups correctly identified the emotions of the protagonists. One possible reason for this high number of correct identifications involves the display of emotions. Except for the bear vignette, all vignettes showed a child protagonist portraying intense facial and vocal expressions of emotions. These features certainly simplified emotion identification.

Hence, except for the cognitive data, the present study extends previous work with CD adolescents: first, by providing evidence for deficits in both dispositional and situational affective empathy among school-aged boys with DBD; second, by providing evidence for an inverse relationship between school-aged boys' aggressive/disruptive behavior and measures of both dispositional affective empathy and situational affective–cognitive empathy.

The present study also compared empathic responses to specific emotions in DBD boys with normal controls. The results revealed different patterns in empathic responses to positive and negative emotions. Compared to the normal controls, DBD boys responded less empathically to sadness and anger, but equally empathically to happiness felt by other persons. The current data indicates that DBD boys are *not* generally unresponsive to the emotions of other persons. DBD boys seem especially insensitive to another person's sadness and anger. Furthermore, empathic responses to sadness (but not to anger or happiness) were found to be inversely related to aggressive/disruptive behavior. These findings match well with data obtained in previous studies (Eisenberg et al., 2001; Feshbach, 1982; Zhou et al., 2002), and support the notion that empathy with positive emotions is not equivalent to empathy with negative emotions.

Feshbach (1982) speculated that different psychological consequences may result from sharing another person's distress or happiness. Sharing another's sadness or fear may be very uncomfortable and may thus motivate one to reduce this negative feeling state by helping the other person. Accord-

ingly, individuals who are better able to feel another's negative emotions might also be more motivated to help the person in distress. In contrast, euphoric empathy may be used to enhance one's own emotional state, and may foster an egocentric orientation rather than an other-centered orientation.

Blair's (1995, 1997) Violence Inhibition Mechanism (VIM) model offers an alternative explanation from an evolutionary perspective. Starting from ethologists' observations that most social animals possess mechanisms for the control of aggression, Blair proposed that humans might possess a functionally analogous mechanism, i.e., a violence inhibition mechanism. The VIM is thought to be activated by the display of sadness and fear, which function as a human submission response. Activation of the VIM initiates a withdrawal response, resulting in the interruption of aggressive behavior. The VIM model predicts that a deficit within this mechanism (resulting from amygdala dysfunction) might result in the development of antisocial behavior seen particularly in psychopathic individuals. In agreement with predictions based on the VIM model, Blair and colleagues demonstrated that psychopathic males (Blair, Jones, Clark, & Smith, 1997) and boys (Blair, 1999) show reduced electrodermal responses to sad expressions. Furthermore, selective impairments in the recognition of facial expressions of sadness and fear have been demonstrated in boys with psychopathic tendencies (Blair, Colledge, Murray, & Mitchell, 2001), but also in normal children with antisocial behavior problems (Blair & Coles, 2000).

The present findings show that reduced responsiveness to another's sadness is also linked to behavior problems in DBD boys. However, whether DBD boys' impairment in sharing sadness stems from neurocognitive impairments or from socialization variables remains to be determined in future research. Further work is needed to examine whether selective impairments in empathic reactions, as proposed by the VIM model, are limited to CD children who are also high in psychopathic tendencies (that is, those who show callous and unemotional (CU) traits (see e.g., Frick et al., 2003)).

DBD boys' impaired empathic responding to anger, for example, does not fit the VIM model. Yet, this finding matches well with earlier findings that aggressive children have particular difficulties reporting subjective experiences of anger (Quiggle, Garber, Panak, & Dodge, 1992). It is important to emphasize, however, that the present findings are based on one anger-vignette only. Moreover, the vignette displayed a boy who is angry because his sister pushed him aside during an important cycle race, but also sad about losing the race. In total, five normal control boys and one DBD boy correctly identified sadness as the prominent emotion. Consequently, the mean empathic anger-scores do not reflect pure empathic anger, but a mixture of empathic responses to both anger and sadness. Future studies will thus be needed to replicate the present findings, using more and different anger-vignettes.

Additional analyses, focusing on empathic responses to the three sadness vignettes, further demonstrate (a) that DBD boys responded less empathically than the normal controls to each and every sadness vignette, and (b) that both DBD boys and normal controls reported higher levels of empathy when they viewed a bear in distress than when they viewed children in distress. Because DBD boys did not process all sadness stimuli as affectively neutral, the current findings suggest that DBD boys do not completely lack the affective ability to experience sadness in response to another person's sadness. Empathic sadness in DBD boys and normal controls may be enhanced or reduced by stimulus characteristics or context cues.

In examining the sympathy scores, different pictures emerged for the 5-point sympathy scale and the binary (yes/no) data. Sympathetic responses assessed on the 5-point sympathy scale did not reveal a significant difference between DBD boys and NC boys, nor an inverse relationship between sympathy and aggressive behavior. Significant differences between groups emerged, however, when the binary (yes/no) responses were analyzed. On average, DBD boys reported less often that they felt sorry (or happy) for the protagonists than the normal controls across the six vignettes. Furthermore, fewer DBD boys reported that they felt sorry for a protagonist displaying either sadness or anger (but not happiness). This pattern matches well with the pattern of affect matches.

Interestingly, more boys expressed feelings of sympathy than empathy in dysphoric situations. For example, across the three sadness vignettes, 76% of the DBD boys (and 100% of the NC boys) reported that they felt sorry for each and every protagonist, while only 8% of the DBD boys (and 42% of the NC boys) reported three affect matches. Likewise, 76% of the DBD boys (and 96% of the NC boys) reported that they felt sorry for the protagonist in the anger vignette, while only 24% of the DBD boys (and 42% of the NC boys) reported an affect match. It is possible that some boys did not actually experience sadness or anger, but it is also possible that some boys simply have more difficulties reporting subjective experiences of anger and sadness than empathic concern. Even so, these findings support the notion that there is a difference between feeling an emotion *with* someone and feeling an emotion *for* someone.

The present study does have several limitations that should be mentioned. First, during the test sessions the experimenters were not blind to the child's status. Although the empathy task was computerized, and experimenters used written protocols (minimizing subject–experimenter interactions), we cannot exclude the possibility that experimenter effects might have played a role.

However, no significant differences emerged on the empathy measures between the four experimenters. Second, because participants were 'passive' observers of others' emotion in the present study, the results cannot be generalized to situations were individuals are 'active' participants. In real-life settings, for example, personal encounters may evoke anxiety or competitive behavior, which inhibits empathic responding. Further research is needed to examine empathic behavior of DBD children under more trying circumstances. Finally, it should be mentioned that these action-oriented DBD boys may have more problems in reflecting on their emotions than normal controls (Matthys, Walterbos, van Engeland, & Koops, 1995), which may have contaminated the present results. Such contamination is difficult to avoid, however, as self-reports are essential in identifying affect matches.

If the present results are replicated, the findings have important theoretical implications. First, the current data indicate that DBD boys are not generally unresponsive to the emotions of other persons. They show impairments in sharing the emotions of sadness and anger, but not in sharing happiness. These findings suggest that different systems may be involved in the empathy process. However, further work will be necessary to determine the nature of empathy in relation to positive versus negative emotions.

Secondly, the present data suggest that empathic sadness in DBD boys and normal controls depend in part on situational factors. For lack of empirical data, we can only speculate about the possible factors that significantly enhanced or reduced empathic responses to the sadness vignettes. However, it is possible that the bear-stimulus evoked stronger empathic responses in all subjects because the bear was more likeable than both children in the sadness vignettes. Earlier studies have demonstrated that the relationship between the observer and the object being observed may either inhibit or enhance empathic responses. Lanzetta and Englis (1989), for example, demonstrated that cooperation between the observer and the person being observed promotes empathy, whereas competition promotes counter-empathy (i.e., that the observer has an opposite-valenced emotion from that of the observed person). Similarly, Zillmann and Cantor (1977) have demonstrated that children who like or dislike the person being observed experience concordant or discordant emotional states, respectively. An important issue for future studies thus concerns the question to what extent impaired empathic responding in DBD boys is caused or maintained by empathy-inhibiting factors, such as negative sentiments towards others, competitive interactions or hostile attributions. Results from these studies may broaden our understanding regarding the nature and causes of deficiencies in empathy proposed for DBD children.

In conclusion, the present study demonstrated that DBD boys show deficits in dispositional and situational empathy. More specifically, the results showed impairments in DBD boys' empathic responses to sadness and anger, but not to happiness. Although DBD boys responded less empathically than the normal controls to each and every sadness vignette, they did *not* show equally low levels of empathic responses to all three vignettes. These findings suggest that DBD boys do not completely lack the capability of feeling empathy with sadness, and that situational factors may be involved in DBD boys' reduced responsiveness to other person's sadness.

Acknowledgments

We wish to thank Peter Bunck for his help in creating the computerized empathy task. We also wish to thank Jocelyne Posthumus and Mariette Rietsema for their assistance in collecting the data.

Correspondence to

Minet de Wied, Department of Child and Adolescent Studies, Utrecht University, P.O. Box 80140, 3808 TC Utrecht, The Netherlands; Tel: (+31) 30 2537693; Fax: (+31) 30 253 7731; E-mail: m.dewied@fss.uu.nl

References

Achenbach, T.M. (1991a). *Manual for the child behavior checklist and 1991 profile*. Burlington: University of Vermont, Department of Psychiatry.

Achenbach, T.M. (1991b). *Manual for the teacher's report form and 1991 profile*. Burlington: University of Vermont, Department of Psychiatry.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th edn). Washington, DC: American Psychiatric Association.

Blair, R.J.R. (1995). A cognitive developmental approach to morality: Investigating the psychopath. *Cognition*, *57*, 1–29.

Blair, R.J.R. (1997). Moral reasoning and the child with psychopathic tendencies. *Personality and Individual Differences*, *22*, 731–739.

Blair, R.J.R. (1999). Responsiveness to distress cues in the child with psychopathic tendencies. *Personality and Individual Differences*, *27*, 135–145.

Blair, R.J.R., & Coles, M. (2000). Expression recognition and behavioural problems in early adolescence. *Cognitive Development*, *15*, 421–434.

Blair, R.J.R., Colledge, E., Murray, L., & Mitchell, D.G.V. (2001). A selective impairment in the processing of sad and fearful expressions in children with psychopathic tendencies. *Journal of Abnormal Child Psychology*, *29*, 491–498.

Blair, R.J.R., Jones, L., Clark, F., & Smith, M. (1997). The psychopathic individual: A lack of responsiveness to distress cues? *Psychophysiology*, *34*, 192–198.

Bryant, B.K. (1982). An index of empathy for children and adolescents. *Child Development*, *53*, 413–425.

Cohen, D., & Strayer, J. (1996). Empathy in conduct-disordered and comparison youth. *Developmental Psychology*, *32*, 988–998.

Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*, 113–126.

Davis, M.H. (1996). *Empathy: A social psychological approach (1994, reprinted 1996). Social Psychology Series*. Boulder, CO: Westview Press.

Dodge, K.A., & Somberg, D.R. (1987). Hostile attributional biases among aggressive boys are exacerbated under conditions of threats to the self. *Child Development*, *58*, 213–224.

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology*, *51*, 665–697.

Eisenberg, N., & Fabes, R.A. (1990). Empathy: Conceptualization, measurement, and relation to prosocial behavior. *Motivation and Emotion*, *14*, 131–149.

Eisenberg, N., Losoya, S., Fabes, R.A., Guthrie, I.K., Reiser, M., Murphy, B., Shepard, A., Poulin, R., & Padgett, S.J. (2001). Parental socialization of children's dysregulated expression of emotion and externalizing problems. *Journal of Family Psychology*, *15*, 183–205.

Endenburg, N. (1995). The attachment of people to companion. *Anthrozoös*, *8*, 83–89.

Evans, I.M., Heriot, S.A., & Friedman, A.G. (2002). A behavioural pattern of irritability, hostility and inhibited empathy in children. *Clinical Child Psychology and Psychiatry*, *7*, 211–224.

Feshbach, N.D. (1982). Sex differences in empathy and social behavior in children. In N. Eisenberg (Ed.), *The development of prosocial behavior* (pp. 315–338). New York: Academic Press, Inc.

Feshbach, N.D. (1997). Empathy: The formative years. Implications for clinical practice. In A.C. Bohart & L.S. Greenberg (Eds.), *Empathy reconsidered: New directions in psychotherapy* (pp. 33–59). Washington, DC: American Psychological Association.

Frick, P.J., Cornell, A.H., Bodin, S.D., Dane, H.E., Barry, C.T., & Loney, B.R. (2003). Callous-unemotional traits and developmental pathways to severe conduct problems. *Developmental Psychology*, *39*, 246–260.

Hastings, P.D., Zahn-Waxler, C., Robinson, J.L., Usher, B., & Bridges, D. (2000). The development of concern for others in children with behavior problems. *Developmental Psychology*, *36*, 531–546.

Hoffman, M.L. (2000). *Empathy and moral development*. New York: Cambridge University Press.

Hoffman, M.L. (2001). Toward a comprehensive empathy-based theory of prosocial moral development. In A.C. Bohart & D.J. Stip (Eds.), *Constructive and destructive behavior: Implications for family, school, and society* (pp. 61–86). Washington, DC: American Psychological Association.

Kaukiainen, A., Bjorkqvist, K., Lagerspetz, K., Osterman, K., Salmivallie, C., Rothberg, S., & Ahlbom, A. (1999). The relationships between social intelligence, empathy, and three types of aggression. *Aggressive Behavior*, *24*, 81–89.

Lahey, B.B., Loeber, R., Quay, H., Frick, P., & Grimm, J. (1992). Oppositional-defiant and conduct disorders: Issues to be resolved in DSM-IV. *Journal of the American Academy of Child and Adolescent Psychiatry*, *31*, 539–546.

Lanzetta, J.T., & Englis, B.G. (1989). Expectations of cooperation and competition and their effects on observers' vicarious emotional responses. *Journal of Personality and Social Psychology*, *56*, 543–554.

Matthys, W., Walterbos, W., van Engeland, H., & Koops, H. (1995). Conduct-disordered boys' perceptions of their liked peers. *Cognitive Therapy and Research*, *19*, 357–372.

Mehrabian, A., & Epstein, N. (1972). A measure of emotional empathy. *Journal of Personality*, *40*, 525–543.

Miller, P.A., & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/antisocial behavior. *Psychological Bulletin*, *103*, 324–344.

Orobio de Castro, B., Veerman, J.W., Koops, W., Bosch, J.D., & Monshouwer, H.J. (2002). Hostile attribution of intent and aggressive behavior: A meta-analysis. *Child Development*, *73*, 916–934.

Piferi, R.L., Kline, K.A., Younger, J., & Lawler, A. (2000). An alternative approach for achieving cardiovascular baseline: Viewing an aquatic video. *International Journal of Psychophysiology*, *37*, 207–217.

Quiggle, N.L., Garber, J., Panak, W.F., & Dodge, K.A. (1992). Social information processing in aggressive and depressed children. *Child Development*, *63*, 1305–1320.

Richardson, D.R., Green, L.R., & Largo, T. (1998). The relationship between perspective-taking and nonaggressive responding in the face of an attack. *Journal of Personality*, *66*, 235–256.

Richardson, D.R., Hammock, G.S., Smith, S.M., Gardner, W., & Signo, M. (1994). Empathy as a cognitive inhibitor of interpersonal aggression. *Aggressive Behavior*, *20*, 275–289.

Sattler, J.M. (1992). *Assessment of children* (3rd edn). San Diego, CA: Jerome M. Sattler, Publisher.

Shaffer, D., Fisher, P., Lucas, C.P., Dulcan, M.K., & Schwab-Stone, M. (2000). NIMH diagnostic interview schedule for children version IV (NIMH-DISC-IV): Description, differences from previous versions and reliability of some common diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry*, *39*, 28–38.

Snow, N.E. (2000). Empathy. *American Philosophical Quarterly*, *37*, 65–78.

Staub, E. (1986). A conception of the determinants and development of altruism and aggression: Motives, the self, and the environment. In C. Zahn-Waxler, E.M. Cummings, & R. Iannotti (Eds.), *Altruism and aggression: Biological and social origins* (pp. 135–164). Cambridge: Cambridge University Press.

Strayer, J. (1993). Children's concordant emotions and cognitions in response to observed emotions. *Child Development*, *64*, 188–201.

Strayer, J., & Roberts, W. (1997). Children's personal distance and their empathy: Indices of interpersonal closeness. *International Journal of Behavioral Development*, *20*, 385–403.

Strayer, J. & Rossberg-Gempton, I.E. (1992). *The empathy continuum scoring manual*. Simon Fraser University, BC, Canada.

Verhulst, F.C., van der Ende, J., & Koot, H.M. (1996). *Handleiding voor de CBCL/4–18* [Manual for the CBCL/4–18]. Rotterdam: Sophia Kinderziekenhuis, Erasmus University, Rotterdam, The Netherlands.

Verhulst, F.C., van der Ende, J., & Koot, H.M. (1997). *Handleiding voor de Teacher's Report Form (TRF)* [Manual for the Teacher's Report Form (TRF)]. Rotterdam: Sophia Kinderziekenhuis, Erasmus University, Rotterdam, The Netherlands.

Wechsler, D. (1974). *Manual for the Wechsler Intelligence Scale for Children-Revised*. New York: Psychological Corporation.

Zhou Q., Eisenberg, N., Losoya, S.H., Fabes, R.A., Reiser, M., Guthrie, I.K., Murphy, B.C., Cumberland, A.J., & Shepard, S.A. (2002). The relations of parental warmth and positive expressiveness to children's empathy-related responding and social functioning: A longitudinal study. *Child Development*, *73*, 893–915.

Zillmann, D. (1991). Empathy: Affect from bearing witness to the emotions of others. In J. Bryant & D. Zillmann (Eds.), *Responding to the screen: Reception and reaction processes* (pp. 135–167). Hillsdale, NJ: Lawrence Erlbaum Associates.

Zillmann, D., & Cantor, J.R. (1977). Affective responses to the emotions of a protagonist. *Journal of Experimental and Social Psychology*, *8*, 155–165.

Manuscript accepted 21 June 2004