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### Assessment and treatment of aggressive children, from a social-cognitive perspective

van Manen, T.G.

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**Assessment and Treatment of  
Aggressive Children from a  
Social-Cognitive Perspective**

Teun van Manen

Cover: Forno per carbone di legna, Castagneto Carduzzi, Italy

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Aggressive Children from a  
Social-Cognitive Perspective**

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Teunis Gijsbert van Manen

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Promotiecommissie

Promotores

prof. dr. P.J.M.Prins  
prof. dr. P.M.G. Emmelkamp

Overige leden

prof. dr. F. Boer  
prof. dr. J.R.M. Gerris  
prof. dr. J. Hermanns  
prof. dr. A. Lange  
prof. dr. P. Muris  
dr. A. Scholing

Faculteit der Maatschappij- en Gedragwetenschappen

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# Chapter 1

## Introduction

### Prologue

The cognitive-behavioral framework asserts that cognitive processes strongly influence how individuals interpret their social world, how they relate and react to others, how they attempt to solve problems, cope with stress and handle developmental challenges (Durlak, Rubin, and Kahng, 2001). It further asserts that cognitive processes play an important mediating role in the development and maintenance of emotional and behavioral disturbances, and, accordingly, that these cognitive processes should be a prime target of intervention. The child's interpretation of the social world, the self/other perspective taking, the search for a social acceptable response to solve a problem, and the evaluation of the consequences of one's social behavior are all elements of social cognition, and all have been targets of cognitive-behavioral therapy (CBT). Social cognition is central to CBT because it concerns the child's, (a) knowledge of other people's behavior, (b) knowledge about thoughts and emotions of self and others, and (c) knowledge about social relations (e.g., friendships). This indicates how social-cognitive models and CBT with children and youth are closely intertwined; both share the idea that children's understanding and interpretations of situations influence their related behaviors (Kendall, 2000).

The focus of this thesis concerns the evaluation of a Social Cognitive Intervention Program (SCIP) for aggressive children. This social-cognitive behavioral group therapy is based on Dodge's social information processing theory (Crick and Dodge, 1994; Dodge, 1986), and integrates problem solving abilities, social cognitive skills and self-control techniques. Attempts have been made to incorporate in Dodge's model a developmental aspect by assessing the therapeutic effect with age - and cognitive

development related social cognitive skills. Moreover, attention has been paid to the role of emotion, corresponding to the integrated model of emotion processes and cognition in social information processing as proposed by Lemerise and Arsenio (2000).

The central objectives of this study is to evaluate the Social Cognitive Skills Test and to examine the effectiveness of the Social Cognitive Intervention Program for aggressive boys and to compare it with a Social Skills Training and a Waitlist control group, examining the question whether focusing on deficits and distortions in social cognitive processes instead of merely focusing on social skills will enhance treatment outcome. Before we present the findings of this study, we describe in this introductory chapter the definition of the behavior of the investigated group, the prevalence of aggressive behavior of children, and the necessity of treating aggressive children. The conditions for an effective treatment in a clinical setting will be explored and we will discuss in further detail the social information processing of aggressive children according to the model of Dodge (1986). Special attention will be paid to the role of development in the assessment and treatment of aggressive children.

### **Definition and Prevalence of Aggressive Behavior**

Conduct disorder is one of the most frequently diagnosed conditions in outpatient and inpatient mental health facilities for children. Rates of conduct disorder for males under 18 years have ranged from 6% to 16%, depending on the nature of the population sample and methods of assessment (American Psychiatric Association, APA, 1994). Oppositional defiant disorder is considered a developmental antecedent to conduct disorder, and conduct disorder is frequently a precursor to antisocial behavior in adulthood (Burke, Loeber and Birmaher, 2002). Conduct disorder and oppositional defiant disorder often occur together. Among clinically referred youths who meet criteria for conduct disorder, 84% to 96% also meet criteria for oppositional defiant disorder (Kazdin, 1997). Individuals with conduct disorder are at risk for later mood or anxiety

disorder, somatoform disorders, and substance-related disorders (APA, 1994). When using the term “aggressive children” in this study, we refer to the terms “conduct disorder” and “oppositional defiant disorder” in the Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM IV, APA, 1994).

**Diagnostic criteria for conduct disorder**

A.

A repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three (or more) of the following criteria in the past 12 months, with at least one criterion present in the past 6 months:

Aggression to people and animals

1. often bullies, threatens, or intimidates others
2. often initiates physical fights
3. has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun)
4. has been physically cruel to people
5. has been physically cruel to animals
6. has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery)
7. has forced someone into sexual activity

Destruction of property

8. has deliberately engaged in fire setting with the intentions of causing serious damage
9. has deliberately destroyed others' property (other than by fire setting)

Deceitfulness or theft

10. has broken into someone else's house, building, or car
11. often lies to obtain goods or favors or to avoid obligations (i.e., “cons” others)
12. has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery)

Serious violations of rules

13. often stays out at night despite parental prohibitions, beginning before age 13 years
14. has run away from home overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)
15. is often truant from school, beginning before 13 years

B.

The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

C.

If the individual is age 18 years or older, criteria are not met for antisocial personality disorder.

Source: APA, 1994

**Diagnostic criteria for oppositional defiant disorder**

A.

A pattern of negativistic, hostile, and defiant behavior lasting at least 6 months, during which four (or more) of the following are present:

1. often loses temper
2. often argues with adults
3. often actively defies or refuses to comply with adults' requests or rules
4. often deliberately annoys people
5. often blames others for his or her mistakes or misbehavior
6. is often touchy or easily annoyed by others
7. is often angry and resentful
8. is often spiteful or vindictive

Note: Consider a criterion met only if the behavior occurs more frequently than is typically observed in individuals of comparable age and developmental level.

B.

The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

C.

The behaviors do not occur exclusively during the course of a psychotic or mood disorder.

D.

Criteria are not met for conduct disorder and, if the individual is age 18 years or older, criteria are not met for antisocial personality disorder.

Source: APA, 1994

**Conditions for Effective Treatment**

In the course of time diverse forms of individual (Kazdin, Siegel and Bass, 1992), group (Hudley and Graham, 1993; Lochman, 1992), parent (Webster-Stratton and Hammond, 1997), family (Alexander, Holtzworth-Munroe and Jameson, 1994), and multi-systemic therapies (Henggeler, Schoenwald, Borduin, Rowland and Cunningham, 1998) have been developed to change children's aggressive behavior. To identify and select promising effective treatments for aggressive children, and to note limitations and emergent methodological issues Kazdin (1997) formulated four criteria, (1) Conceptualization. The treatment should have a theoretical

rationale that notes how the conduct disorder comes about and how treatment redresses the conduct disorder. (2) Basic research to support the conceptualization. (3) Evidence in clinical research showing that the approach leads to change on clinically relevant measures. Controlled clinical trials are preferred. (4) Evidence from an outcome study that shows a relation between these processes hypothesized to be critical to therapeutic change and actual change would be very persuasive. Four promising treatments have been identified for conduct disorder by Kazdin (1997), because they were evaluated in controlled clinical trials. The treatments include problem solving skills training, parent-management training, functional family therapy, and multisystemic therapy.

Besides Kazdin's criteria, in our study we paid attention to meet the Brestan and Eyberg methodological criteria (1998) for a well-established treatment: superior to waitlist-control group or another treatment, using a comparison group, random assignment, reliable measures, descriptive statistics, 12 or more participants per group, masked assessment, a treatment manual, 6-month follow-up data, treatment integrity data, and of course, their last recommendation "replication conducted by independent investigators" has not yet been achieved.

### **Social Information Processing**

The theoretical rationale of this thesis is based on the social information processing model of Dodge (1986). Dodge's model is based in cognitive psychology, and posits that aggressive boy's immediate response occurs as a sequential set of emotional and mental processes building up to motor behavior. Steps include (a) attending to and encoding relevant cues into working memory; (b) mentally representing and interpreting encoded cues in a meaningful way; (c) accessing one or more potential responses to this situation from one's long-term memorial repertoire; (d) evaluating accessed responses, perhaps by anticipating whether they lead to desired outcomes or not or according to some moral code; and , finally, (e) enactment of a selected response through motor and verbal behavior (Dodge and Petit,



2003). Although there has been made significant progress in treatment for aggressive children, until the late eighties of the last century there was less focus on social information processing. In the past decades the research on social information processing by aggressive children has been growing. The deficits and distortions of aggressive children in social information processing result in emotional and behavioral disturbances; they have been well-documented in several recent reviews (Akhtar and Bradley, 1991; Crick and Dodge, 1994) and meta-analyses (Yoon et al., 1999).

The social information processing model has important implications for diagnosis and treatment. Skilful processing at each step of social information processing is hypothesized to lead to competent performance within a situation, whereas biased or deficient processing is hypothesized to result in deviant social behavior (Prins and Van Manen, 2004). Research on individual differences in social information processing has consistently shown that aggressive children perceive, interpret, and make decisions about social stimuli in ways that increase the likelihood of their engaging in aggressive acts (Yoon, Hughes, Gaur and Thompson, 1999). Aggressive children fail to encode all relevant environmental cues, selectively attend to hostile cues, react on recency bias cues, show a hostile attribution bias towards other children, generate fewer and less effective solutions for problematic situations, generate more aggressive and fewer assertive solutions, and do not worry about negative consequences of their actions (Crick and Dodge, 1994; Dodge, 1986). These cognitive deficits are most likely to appear in situations where children are provoked, teased, or threatened. Chapter 2 provides a summary of the social information processing model of children's social adjustment and a reformulation of the social information processing mechanisms. Evidence supports the empirical relation between characteristic processing styles (e.g., hostile attributional biases, intention cue detection accuracy, response access patterns, and evaluation of response outcomes) and aggressive children's social adjustment (Crick and Dodge, 1994). This shows the relation between theory and clinical practice. The aim of the main study in this thesis has been to develop an intervention that targets the underlying social

information processes of aggressive children. The social cognitive deficits and distortions related to each step of Dodge's model were transformed into treatment components such as problem-solving abilities, social cognitive skills, and self-control techniques.

### **The Role of Developmental Theory**

Children are continuously developing in their physical, cognitive and social capacities, and many authors have proposed to systematically use insights from developmental theory for the assessment and treatment of children. However, until now, it has proven to be very difficult to translate such theoretical insights into practical guidelines for health care professionals (Prins and Scholing, 2001). In this thesis attention will be paid to this issue and an attempt has been made to begin changing this state of affairs.

Ollendick, Grills, and King (2001) stated, that in applying developmental theory to assessment and treatment of childhood disorders, (a) developmental theory guides us in the selection and use of developmentally sensitive assessment strategies, (b) use of developmental theory assists us in the treatment of children by helping us determine when a behavior problem is significant and when to initiate treatment, how to determine the goals of treatment and to select targets for treatment outcome, which treatment strategies to select for intervention, and how to determine the context of intervention, and (c) the importance of developmental theory is axiomatic when working with children.

In a recent review of the role of developmental psychology in Cognitive Behavior Therapy (CBT), Grave and Blissett (2004) concluded, that there is strong evidence that age and, by implication, cognitive developmental level play a central mediating role in the efficacy of CBT. However, there is little support for cognitive shift being the mechanism for behavioral change in the evidence presented so far. There are at least two possible explanations for this: (1) the inability to demonstrate the relation between cognitive change and therapeutic outcome is due to a lack of sophistication in the assessment

and measurement of cognitive function and change in children, or a failure to measure it at all, and (2) the process of change in the current models of CBT is behavioral and not cognitive. In this thesis special attention has been paid to the two aforementioned aspects that “explain” the lack of evidence for cognitive shift being the mechanism for behavioral change.

*I. The assessment and measurement of cognitive function and change in children*

In comparison with research on the role of social information processing in change in aggression, little attention has been directed to developing measures to assess the social information processing deficits in aggressive children (Hughes, Meehan and Cavell, 2004). Existing measures which assess social cognitive processes, (a) focus on a limited number of social cognitive processes (Yoon, Hughes, Gaur and Thompson, 1999), or (b) appear to have insufficient validity and clinical utility (Orobio de Castro, Veerman, Koops, Bosch and Monshouwer, 2002). A test that assesses deficits in specific social cognitive skills of an aggressive child was not available. Therefore, the development of the Social Cognitive Skills Test (SCST) was initiated (Van Manen, Prins and Emmelkamp, 2001).

Because the Social Cognitive Intervention Program (SCIP) in this thesis is based on Dodge’s model of social information processing, this model and the role of developmental theory will be discussed briefly. For a more detailed discussion, see Chapter 3. Generally, social information processing models lack a developmental focus (Crick and Dodge, 1994). As children grow older, they experience changes in social knowledge, attentional abilities and mental organizational skills. A link between the developmental aspect of social cognitive processes and the actual behavior of the child in social situations can be found in the work of Selman (1980; 2003). With regard to the processing of social perspectives, Selman and Byrne (1974) postulated four developmental levels of role-taking between the ages 4 and 12: at level 0 (egocentric role-taking) the child does not differentiate between views, thoughts, and feelings of self and other; at level 1 (subjective role-taking) the child is aware that identical social situations can

be interpreted differently by others through for instance feelings and thoughts. The child is able to differentiate between social perspectives of self and others. At level 2 (self-reflective role-taking) the child is able to reflect on its own behavior from the perspective of another person. The child can infer the perspective of the other in relation to the behavior of the self. At level 3 (mutual role-taking) the child is aware that inner attributes of the self can be object of another person's thinking and vice versa. These four levels of social cognitive development can be used to characterize the processing of social perspectives by the following eight social cognitive skills (Gerris, 1981): (1) identifying, (2) discriminating, (3) differentiating, (4) comparing, (5) perspective-taking, (6) relating, (7) co-ordinating, and (8) taking into account different perspectives. The Social Cognitive Skills Test is based on the assumption that the social cognitive development of children takes place in a sequence of eight social cognitive skills, which are hierarchical organized in such a way that cumulative learning can take place. One of the aims of the SCST is to determine the specific deficits in the social cognitive functioning of the child.

## *II. The process of change: behavioral and cognitive*

This thesis was designed to examine the effectiveness of a social cognitive intervention program that was specifically developed for aggressive children to address their social cognitive deficits and distortions related to all stages of Dodge's model of social information processing. The social cognitive deficits and distortions related to each step of Dodge's model were transformed into treatment components such as problem-solving abilities, social cognitive skills, and self-control techniques. In this thesis we incorporated in Dodge's model a developmental aspect, which is reflected in the child's use of age - and cognitive development related social cognitive skills (see Van Manen, Prins and Emmelkamp, 2001). We also paid attention to the role of emotion in social information processing, corresponding to the integrated model of emotion processes and cognition in social information processing recently proposed by Lemerise and Arsenio (2000). The problem-solving skills and the social cognitive skills of the

Social Cognitive Intervention Program (SCIP) were integrated into the sequence of the six steps in Dodge's model. The change in social cognitive skills after the SCIP may be an indication of a modification in the child's social cognitive processes, which will result in improved behavioral adjustment.

Although the emphasis on active mental operations during social interactions was the hallmark of early processing theory, issues like the role of emotion in processing became under-exposed (Dodge and Rabiner, 2004). Dodge and Rabiner (2004) stated, that information processing theory is meant to be entirely emotional, in that emotion is the energy level that drives, organizes, amplifies, and attenuates cognitive activity and in turn is the experience and expression of this activity. Lemerise and Arsenio (2000) made the role of emotion processes clear by including emotion to Crick and Dodge's (1994) social information processing model.

The main study in the present thesis is a randomised controlled trial investigating the effectiveness of a Social Cognitive Intervention Program (SCIP) for aggressive boys, and compare it with a Social Skills Training (SST) and waitlist-control group. We expected that focusing on the deficits and distortions in social cognitive processes (SCIP) instead of merely focusing on social skills (SST) would enhance the effectiveness. More research is needed to examine the processes that may mediate therapeutic change in aggressive children, such as change in social cognition.

### **Outline of the Thesis**

In Chapter 2 the development of the Social Cognitive Skills Test is presented. In Chapter 3 the results of a pilot study to examine the effectiveness of the social cognitive intervention program "Self-control", which is based on Dodge's model of social information processing, are described. Chapter 4 presents the main study, the randomised controlled clinical trial of the social cognitive intervention program with two control conditions, a social skills training, and a waitlist control group. In Chapter 5, the mechanisms or processes of change in the effective social cognitive

group treatment for aggressive boys are analyzed. Mediation analysis was conducted for social cognition and self-control as mediators of treatment outcome. Finally, in Chapter 6 of this thesis we discuss the future directions in the field of assessment and treatment for aggressive children.



## Chapter 2

# **Assessing Social Cognitive Skills in Aggressive Children from a Developmental Perspective: The Social Cognitive Skills Test<sup>1</sup>**

### **Abstract**

The development and psychometric evaluation of the Social Cognitive Skills Test (SCST) for (aggressive) children is described. The SCST is based on the structural developmental approach of social cognition by Selman and Byrne (1974) and consists of six short stories with corresponding pictures. Each story measures eight social cognitive skills. The SCST takes into account the developmental level of the (aggressive) child and his/her social information processing deficits. Three studies were conducted to explore the psychometric qualities of the SCST. Study 1 ( $n = 47$ ) supported the notion that (a) the SCST discriminates between aggressive and non-aggressive children, and that (b) there is a descending trend in SCST-scores as social cognitive skills increase in complexity. Study 2 ( $n = 115$ ) confirmed the findings of Study 1 and further revealed (a) no differences in the scores on the SCST between reactive and proactive aggressive children, and (b) a positive association between chronological age and social cognitive level of the aggressive and non-aggressive children. Finally, Study 3 ( $n = 48$ ) confirmed the previous findings and found that

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aggressive children have difficulty verbalizing their thoughts, feelings and intentions and show a lack in non-verbal social understanding.

## **Introduction**

Crick and Dodge (1994) proposed that children enter a social situation with a set of biologically limited capabilities and with a database of memories of past experiences. The path from a particular stimulus to a behavioral response follows a sequence of steps in a circular model: (1) encoding of external and internal cues, (2) interpretation and mental representation of those cues, (3) clarification or selection of a goal, (4) response access or construction, (5) response decision, and (6) behavioral enactment. The children evaluate their performance and store the positive and/or negative outcome into a database of past experiences and are able to use this evaluation in a new social situation.

Generally, social information processing models lack a developmental focus (Crick and Dodge, 1994). As children grow older, they experience changes in social knowledge, attentional abilities and mental organizational skills. The underlying social information processes of aggressive children can be reflected in specific social cognitive skills (see below). A link between the developmental aspect of social cognitive processes and the actual behavior of the child in social situations can be found in the work of Selman (1980). With regard to the processing of social perspectives, Selman and Byrne (1974) postulated four developmental levels of role-taking between the ages 4 and 12 years: at level 0 (egocentric role-taking) the child does not differentiate between views, thoughts, and feelings of self and other; at level 1 (subjective role-taking) the child is aware that identical social situations can be interpreted differently by others through for instance, feelings and thoughts. The child is able to differentiate between social perspectives of self and others. At level 2 (self-reflective role-taking) the child is able to reflect on its own behavior from the perspective of another person. The child can infer the perspective of the other in relation to the behavior of the self. At level 3 (mutual role-taking) the child is aware

that inner attributes of the self can be the object of another person's thinking and vice versa. These four levels of social cognitive development can be used to characterize the processing of social perspectives by the following eight social cognitive skills (Badal et al., 1976; Gerris, 1981): (1) identifying, (2) discriminating, (3) differentiating, (4) comparing, (5) perspective-taking, (6) relating, (7) coordinating, (8) taking into account different perspectives. These eight social cognitive skills are defined in table 2.1.

Table 2.1. The definitions of the eight social cognitive skills

<p>1. Identifying The ability to discern the existence of subjective perspectives of others and oneself and to recognize and label them. Identifying is a summarizing construct consisting of three sub-operations: discerning, recognizing and labelling. Discerning is the ability to judge whether another person has a perspective. Recognizing is the ability to judge whether a label or a perspective offered to the subject corresponds with an observable perspective. Labelling is the ability to give the right verbal label to an observable perspective of a person.</p> <p>2. Discriminating The ability to judge whether two or more observable perspectives are similar or dissimilar without the requirement to verbalize or label the specific (dis)similarities.</p> <p>3. Differentiating The awareness or understanding that two or more persons in similar (or dissimilar) situations do not necessarily have similar or identical perspectives.</p> <p>4. Comparing The ability to determine and label discrepancies and similarities between observable perspectives of different persons in the same situation</p> <p>5. Perspective taking The ability to infer what perspective another person has. To take the position or role of another person and to infer the perspective of that person.</p> <p>6. Relating The ability to relate at least two perspectives and their causes and vice versa.</p> <p>7. Coordinating The ability to take a third person's position: the awareness that a person's inference of a perspective of another person can be the object of his own thinking.</p> <p>8. Taking into account The ability to take perspectives of others and oneself into account at the same time.</p>
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Source: Gerris, 1981

From a socio-cognitive perspective it has been assumed that aggressive children show deficits and distortions in the social information processes

(Dodge, 1986; Crick and Dodge, 1994; Kendall and Lochman, 1994). Cognitive distortions refer to dysfunctions in social information processing and cognitive deficits refer to the performing of behavior without using the benefit of (fore)thought. Cognitive distortions and cognitive deficits have both been identified in aggressive children (Kendall et al., 1991).

Aggressive children show deficits in social information processing which are reflected in their incomplete utilization of environmental cues, selective attention to aggressive environmental cues, overattribution of hostile intent and in a reduced proportion of effective versus ineffective potential responses to aversive situations (Kendall et al., 1991).

Following Dodge and Coie (1987), many researchers (Day et al., 1992; Vitaro et al., 1998; Poulin and Boivin, 2000) distinguish between reactive and proactive aggression. Reactive aggression is characterized by “hot-blooded” anger, menacing hostile attacks, defensive postures and a lack of self-control. Proactive aggression is characterized by “cold-blooded”, less emotional, highly organized and driven by the expectation of reward (Dodge et al., 1997). These two subtypes of aggression show different social information processing patterns (Dodge et al., 1997). Failures in the first four steps (cue-related processing) of Dodge’s information processing model are related to reactive aggression, whereas failures in the last two steps (outcome-related processing) are related to proactive aggression (Dodge et al., 1997). This would imply that the eight social cognitive skills correspond with the first four steps of Dodge’s model. Thus, it is hypothesized that reactive aggressive children will have more difficulty with mastering the social cognitive skills than proactive aggressive children.

Extensive research has been carried out on the treatment of aggressive children (Brestan and Eyberg, 1998). This research has clearly shown a need for instruments to assess the cognitive deficits and distortions of aggressive children. Further, more research is needed to examine the processes that may mediate therapeutic change in aggressive children, such as change in social cognition.

Spence (1994) discussed a number of instruments which assess different aspects of social cognition. The majority of these measures appeared to have

insufficient validity to diagnose social cognitive skills in children. Tests which assess social cognitive processes and are clinically useful, are the Selman and Byrne test (1974), the Means-Ends Problem Solving Inventory (MEPS) (Spivack et al., 1976), the Taxonomy of Problematic Social Situations for Children (TOPS) (Dodge et al., 1985) and the Social Cognitive Assessment Profile (SCAP) (Hughes et al., 1993). However, a test that assesses deficits in specific social cognitive skills of an aggressive child was not available. Therefore, the development of the Social Cognitive Skills Test (SCST) was initiated.

### **Development of The Social Cognitive Skills Test**

The SCST is based on the assumption that the social cognitive development of children takes place in a sequence of eight social cognitive skills, which are hierarchically organized in such a way that cumulative learning may occur. One of the aims of the SCST is to determine the specific deficits in the social cognitive functioning of a child. The eight social cognitive skills represent a more extensive differentiation of age-related social cognition than the four social cognitive levels postulated by Selman (1980) (see table 2.2).

Table 2.2. The age-related sequence of social cognitive level and corresponding social cognitive skills

Social Cognitive Level (Selman, 1980)	Social Cognitive Skills (Gerris, 1981)	Age
1. Egocentric	1. Identifying 2. Discriminating	about 4 years
2. Subjective	3. Differentiating 4. Comparing	about 6 years
3. Self Reflective	5. Perspective-taking 6. Relating	about 8 years
4. Mutual	7. Coordinating 8. Taking into account	about 10 years

The SCST consists of six short stories with corresponding pictures. Story 1 is shown below (Figure 2.1). The stories of the SCST are all about a social situation. The child in the story encounters a troublesome situation with another child or adult. The child is questioned about each story through eight questions (See Table 2.3). The eight questions of each story measure the eight social cognitive skills. The maximum score for each question is 2. If the answer is not quite correct or unclear, an alternative question or help-question can be asked. If the answer is then satisfactory, a score of 1 is given. A wrong answer is scored with 0. A maximum score of 16 on one story of the SCST means that the child masters the eight social cognitive skills. The maximum score of one social cognitive skill on the six short stories is 12.

Table 2.3. Story 1 and Questions of the SCST

<p>Story 1. Playing marbles</p> <ol style="list-style-type: none"><li>1. This girl is playing with a marble</li><li>2. The marble rolls into the drain</li><li>3. The girl is sitting on the sidewalk</li><li>4. The boy joins her and shows her his newly won marbles</li><li>5. The girl starts to cry and runs away.</li></ol> <p>Question 1. Identifying How does the boy feel in picture 5? Alternative Question (AQ): How does the girl feel in picture 1?</p> <p>Question 2. Discriminating In which two pictures are the girl and the boy feeling the same? AQ: Do the boy and the girl feel the same in picture 4?</p> <p>Question 3. Differentiating The girl is thinking of her lost marble. What is the boy thinking of in picture 4? Help Question (HQ): She has lost her marble. And the boy? Repeat question 3.</p> <p>Question 4. Comparing The girl in picture 1 and the boy in picture 4 are thinking of the same thing. What are they both thinking of? HQ: What is the girl thinking in picture 1? Repeat question 4.</p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Question 5. Perspective taking

What is the boy thinking in picture 5?

HQ: Does the boy know why the girl is crying? Repeat question 5.

Question 6. Relating

Why is the girl not happy that the boy has new marbles?

HQ: What has happened to her own marble? Repeat question 6.

Question 7. Coordinating

In picture 4 the boy thinks that the girl will be happy for him. Why?

HQ: Why is the boy happy? Repeat question 7.

Question 8. Taking into account

What can the girl do so the boy will not be puzzled?

HQ: Can she expect that the boy understands what is happening when she just cries? Repeat question 8.

Story 1 is an adaptation of Gerris (1981)

To increase the sensitivity of the SCST, we introduced colours in the pictures of the stories. Research by Boyatzis and Varghese (1994) suggested that bright and sparkling colours like red, blue, yellow and orange elicit positive emotions in children. Therefore, the primary colours red, blue, yellow and green were introduced. The most recent version of the pictures of the story “Playing marbles” can be seen below in black and white.

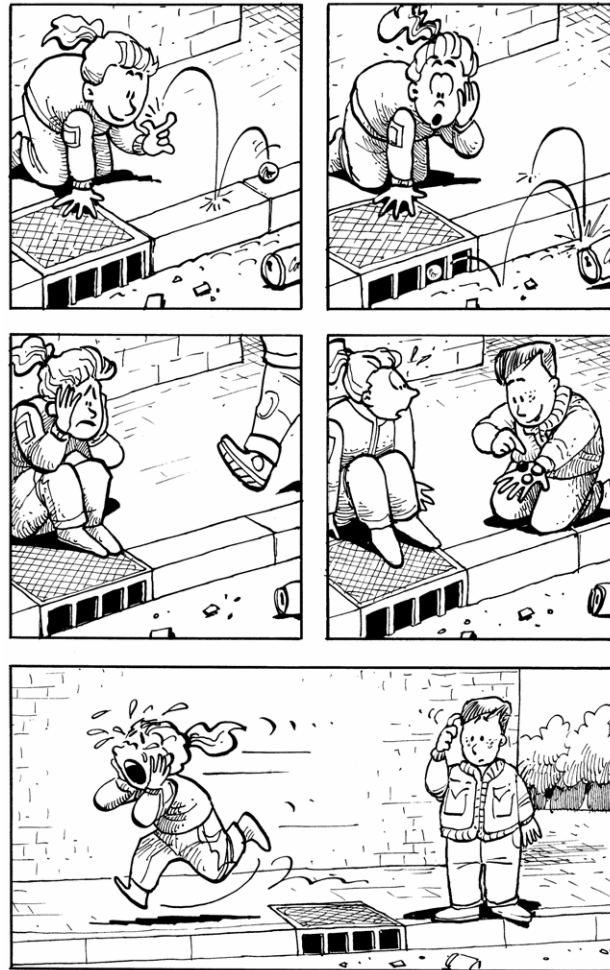


Fig. 2.1. Illustration of Story 1 of the SCST

The aim of the present study is to describe the development of the SCST and to explore its psychometric qualities. The SCST is based on the structural-developmental approach of social cognition by Selman and Byrne (1974). Advantages of the SCST above the measures mentioned before, are: (1) differentiation among children of 4 – 12 years old, (2) assessment of the child's social cognitive level, and (3) assessment of deficits in specific social cognitive skills. Three studies are reported here which were conducted to examine, whether (a) the SCST discriminates between

aggressive and non-aggressive children, (b) the same sequence in the development of social cognitive skills will be found as indicated in the theory of Selman and Byrne (1974) and Gerris (1981), (c) the SCST discriminates between reactive and proactive aggressive children, (d) the SCST reveals a relation between chronological age and social cognitive developmental level, and finally (e) whether there is a relation between verbal and non-verbal reasoning and social cognition.

## **Study 1**

Study 1 has to be considered as a pilot-study and a precursor of the following studies. The goals of Study 1 were to explore the facilities of the SCST in using it as a test on aggressive children (a) whether there are indications that the SCST would discriminate between aggressive and non-aggressive children, and (b) whether there would be a descending trend perceptible as the social cognitive level was increasing in complexity.

### ***Method***

#### ***Participants***

Participants were 57 aggressive elementary school-aged children. The children (age 10 – 12 years;  $M = 10.7$ ,  $SD = .69$ ) were recruited from four schools for special education in various suburban areas in The Netherlands. They were enrolled in these schools because of their disruptive behavior and inappropriate social skills. The children's parents completed the Child Behavior Checklist (CBCL) (Achenbach and Edelbrock, 1991; Verhulst et al., 1996) and the children's teacher filled out the Teacher's Report Form (TRF) of the CBCL. To be included in this study the child had to have a verbal IQ score of the WISC-R above 80, no learning disorder and no scores on the problem-scales of the CBCL or TRF which were dominant over the scores on the aggression and the delinquent behavior scale. Taking into account the inclusion criteria, each teacher randomly selected a child from his/her class. After parental consent and child assent the original sample of 57 children was reduced to 47 aggressive children (43 boys, 4 girls).



*Procedure*

The testing of the children was performed by two graduate students in clinical child psychology, who had been trained in the administration of the SCST in a pilot study. The SCST was administered in a one-to-one setting. The child was seated across a table from the tester. The tester described the nature of the test and the test instruction was then read aloud. Two trial items (dummy's) were administered. If the child had no questions, the SCST was administered and the tape-recorder was switched on. While the child looked at the pictures of the story the tester read the story and put the questions.

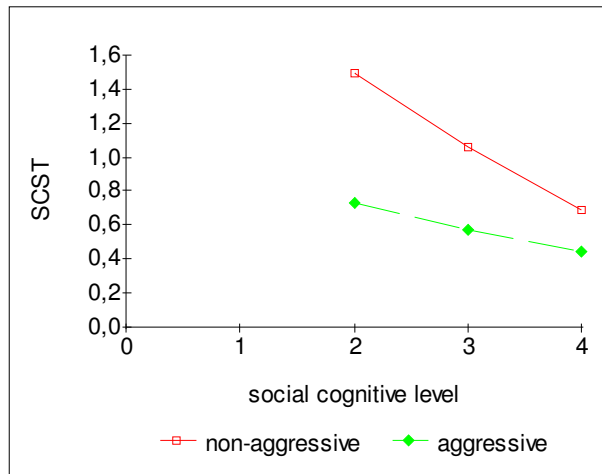
*Results and Discussion**Aggression and Social Cognition*

Do aggressive children perform on a lower social cognitive level than non-aggressive children? The means and standard deviations of , on the one hand the non-aggressive children ( $n = 120$ ) in the study of Van Oost et al., (1989) and on the other, the aggressive children ( $n = 47$ ) are presented in Table 2.4, and changes in the social cognitive levels for the two groups are presented in Figure 2.2. There were no differences in age, race or gender between the two groups.

Table 2.4. Means and standard deviations for the social cognitive levels of non-aggressive (Van Oost et al., 1989) and aggressive children

Social cognitive level	Non-aggressive children ( $n = 120$ )		Aggressive children ( $n = 47$ )	
	<i>M</i>	SD	<i>M</i>	SD
Level 1	---	---	.89	.15
Level 2	1.49	1.04	.73	.19
Level 3	1.06	.68	.57	.23
Level 4	.69	.86	.45	.27

Fig.2.2. Social cognitive level in non-aggressive (Van Oost et al., 1989) and aggressive children on the SCST



The study of Van Oost et al. (1989) confirmed the research findings of Selman and Byrne (1974) and Gerris (1981) that non-aggressive children showed an age-related sequence of social cognitive level and corresponding social cognitive skills. The data of the present study suggest that aggressive children are functioning on a lower social cognitive level than non-aggressive children. This supports earlier findings of Karniol (1978) and Dodge et al., (1984), which indicate that deviant children score lower than normal children in the attribution of intentions to others' behavior. Moreover, it is consistent with the hypothesis of a developmental lag in the acquisition of intention-cue detection skills of aggressive children. The evaluation of ill-intentioned acts occurs earlier in development than does the evaluation of well-intentioned acts (Dodge et al., 1984).

The findings confirmed the notion, that (a) the SCST can be useful in discriminating non-aggressive and aggressive children, and (b) there is a descending trend perceptible as the social cognitive levels are increasing in complexity.

*Social Cognition and Chronological Age*

It was not possible to analyse the effect of age on the mastering of the eight social cognitive skills. There were too few children of 10 years of age (seven) in comparison with the 11-year-olds (15) and the 12-year-olds (25) to create a significant difference on the SCST.

**Study 2**

***Method***

*Participants*

Participants were 115 children (aged 6 to 12 years;  $M = 9.4$ ,  $SD = 1.5$ ): 80 non-aggressive children and 35 aggressive children. There were 72 boys and 43 girls. The children attended five regular elementary schools and four schools for special education in various suburban areas of the Netherlands. Each teacher selected at random four children from his/her class. A total of 136 children were selected. Because of illness or no parental consent 21 children were dropped from the study .

*Measures*

In addition to the SCST the following measures were used. *Aggression.* To assess the level of aggression the Teacher Rating Scale for Reactive and Proactive Aggression (TRA) (Dodge and Coie, 1987; Brown et al., 1996) was used. The TRA contains 21 antisocial items, including the factors Proactive and Reactive Aggression. According to Dodge and Coie (1987) the reactive aggression scale contains three items: “when teased, strikes back”, “blames others in fights”, and “overreacts angrily to accidents”. The proactive aggression scale contains three items: “uses physical force to dominate”, “gets others to gang up on a peer”, and “threatens and bullies others”. A 5-point Likert-type scale, ranging from 1 (never) to 5 (almost always), was used to indicate how frequently each statement applied to a particular child. The internal consistency was  $\alpha = .90$  for reactive aggression and  $\alpha = .85$  for proactive aggression. Examination of this rating scale revealed that both subscales presented a high internal consistency in two recent studies of Poulin and Boivin (2000), Cronbach's

alpha of these scales was .91 and .90 for reactive aggression and .92 and .91 for proactive aggression, and in the study of Dodge et al. (1997)  $\alpha = .95$  for reactive aggression and  $\alpha = .93$  for proactive aggression. The discriminant validity of the proactive and reactive aggression scales was supported by factor analyses demonstrating that teacher ratings of the two constructs tended to load on separate factors (Dodge et al., 1997). To determine whether a child was proactive aggressive or reactive aggressive we followed the procedure of classification proposed by Dodge et al. (1997). Children who received a reactive aggression score that was 1 SD above the sample mean or greater and a proactive aggression score that was less than 1 SD above the sample mean were classified as *reactively aggressive* ( $n = 14$ ). Children who received a proactive aggression score that was 1 SD above the sample mean or greater and a reactive aggression score that was less than 1 SD above the sample mean were classified as *proactively aggressive* ( $n = 8$ ). Children who received a reactive aggression score that was 1 SD above the sample mean or greater and who also received a proactive aggression score that was 1 SD above the sample mean or greater were classified as *unclassified aggressive* ( $n = 13$ ). All other children were classified as non-aggressive ( $n = 80$ ).

*Learning Ability.* In order to control for learning ability in relation to social cognitive level, each child's learning ability was assessed using a 5-item rating scale. The teachers were asked to fill out five questions on a 7-point scale, ranging from (1) much lower to (7) much higher, indicating the child's learning ability compared to the other pupils in the classroom on intellectual faculties, such as reading, arithmetic, spelling. Moreover, the teachers were asked to indicate whether or not the child had passed grades.

### *Procedure*

The testing of the children was performed by two female graduate students in clinical child psychology. All stories of the SCST were administered. The same test procedure was followed as in Study 1.

**Results and Discussion***Aggression and Social Cognition*

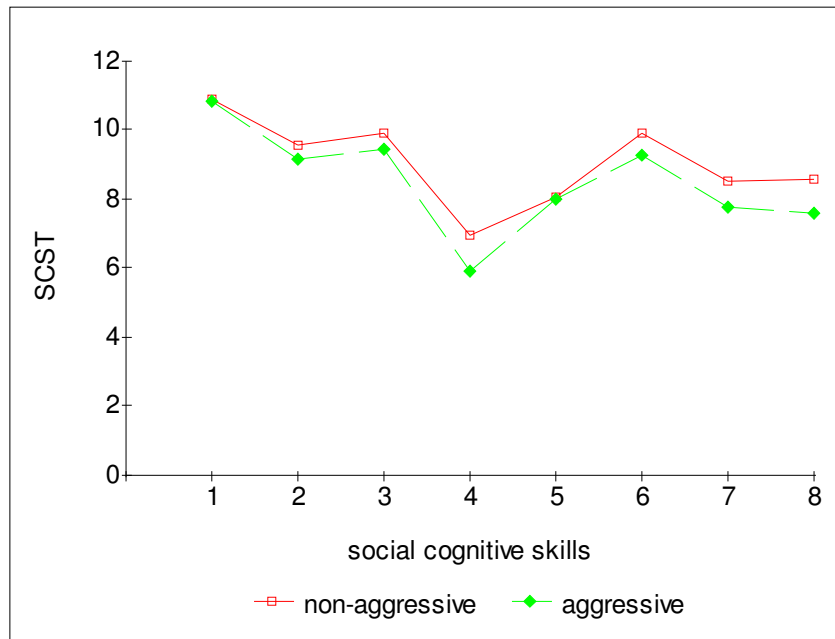
Do aggressive children perform on a lower social cognitive level than non-aggressive children? A multivariate analysis of variance (MANOVA) revealed a significant difference between scores on the SCST of the aggressive and the non-aggressive children,  $F(1,113) = 4.73, p < .05$ . The aggressive children scored significantly lower on the SCST than the non-aggressive children. On the separate social cognitive skills the aggressive children scored significantly lower on the social cognitive skills no. 4 “comparing” and no. 6 “relating” than the non-aggressive children (See Table 2.5 and Figure 2.3). The scores on the eight social cognitive skills of the aggressive children and of the non-aggressive children showed again a descending trend as the social cognitive skills increased in complexity. It was notable, that the performance on social cognitive skill no. 4 “comparing” and on no. 6 “relating” in both non-aggressive and aggressive children was not as expected; no. 4 was lower, and no. 6 was higher compared to the other social cognitive skills (See Figure 2.3).

Table 2.5. Means and standard deviations for the social cognitive skills of the non-aggressive and the aggressive children

Social cognitive skills	Non-aggressive children ( $n = 80$ )		Aggressive children ( $n = 35$ )	
	<i>M</i>	SD	<i>M</i>	SD
1. Identifying	10.90	.69	10.83	.86
2. Discriminating	9.59	1.56	9.17	1.50
3. Differentiating	9.92	1.76	9.46	1.99
4. Comparing	6.93	2.49	5.94*	2.26
5. Perspective taking	8.07	2.58	8.00	2.43
6. Relating	9.92	1.55	9.26*	1.90
7. Coordinating	8.51	2.15	7.77	2.61
8. Taking into account	8.60	2.41	7.60	3.23

\*  $p < .05$

Fig. 2.3. Means for the social cognitive skills of non-aggressive and aggressive children on the SCST



#### *Proactive and Reactive Aggression*

Do reactive aggressive children perform on a lower social cognitive level than proactive aggressive children? A MANOVA indicated no significant difference between the two groups of aggressive children,  $F(3,111) = 1.76$ ,  $p = .158$ . This result may be due to lack of power given the small number of reactive ( $n = 14$ ) and proactive aggressive children ( $n = 8$ ) in our sample.

#### *Social Cognition and Chronological Age*

Is there a difference between the social cognitive level and the chronological age of aggressive and non-aggressive children? A MANOVA indicated that there was a significant difference between age groups: (a) the group of 6-, 7- and 8-year-olds, (b) the group of 9- and 10-year-olds and (c) the group of 11- and 12-year-olds,  $F(16, 212) = 1.86$ ,  $p = .03$ . The group of 6-, 7- and 8-year-olds scored significantly lower than the group of 9- and 10-year-olds and the group of 11- and 12-year-olds.

Within the group of 6-, 7- and 8-year-olds was a significant difference between the social cognitive skills no.1 up to and including no. 4 ( $M = 8.69$ ,  $SD = 1.48$ ) in comparison with the social cognitive skills nos 5 - 8 ( $M = 7.61$ ,  $SD = 2.06$ ),  $t(34) = 4.17$ ,  $p = .001$ . The 6-, 7- and 8-year-olds scored significantly higher on the first four social cognitive skills than on the last four. This is in accord with the findings of Selman (1980) and Gerris (1981) (See Table 2.2), that 6-, 7- and 8-year-olds master the first four social cognitive skills well and the last four social cognitive skills less well.

Within the group of 9- and 10-year-olds was a significant difference between the social cognitive skills no. 1 up to and including no. 6 ( $M = 9.27$ ,  $SD = .79$ ) in comparison with the social cognitive skills nos 7 and 8 ( $M = 8.45$ ,  $SD = 1.78$ ),  $t(46) = 3.52$ ,  $p = .001$ . The 9- and 10-year-olds scored significantly higher on the first six social cognitive skills than on the last two. This again confirms the findings of Selman (1980) and Gerris (1981), that 9- and 10-year-olds master the first six social cognitive skills well and the last two social cognitive skills less well.

#### *Social Cognition and Learning Ability*

Do children with a high learning ability score higher on the SCST than children with a low learning ability? The children were divided into nine groups; three levels of learning ability: low, average and high ability, and three age groups: 6, 7 and 8 years, 9 and 10 years, and 11 and 12 years. A MANOVA revealed a significant difference between the groups,  $F(8, 102) = 5.075$ ,  $p < 0.01$ . Post-hoc analysis with Tukey-HSD ( $p = .05$ ) indicated that children of 6, 7 and 8 years with high learning ability scored significantly higher on the SCST than 6, 7 and 8-year-olds with average learning ability. Further analysis revealed that children of 6, 7 and 8 years with high learning ability scored significantly higher on the social cognitive skills nos 2, 4 and 6 ( $p < .05$ ) and on the social cognitive skills nos 5, 7 and 8 ( $p < .01$ ) than children of the same age with a average learning ability. In the other groups were no significant scores found.

### **Study 3**

#### ***Method***

##### *Participants*

Participants were 48 children (29 boys, 19 girls); aged 8 to 12 years ( $M = 9.8$ ,  $SD = 1.2$ ). The children attended three regular elementary schools (two schools in the Netherlands and one school in Hungary) and one school for special education.

##### *Measures*

In addition to the SCST and the Teacher Rating Scale for Reactive and Proactive Aggression (TRA) the following measures were used. The parents completed the aggression scale of the Child Behavior Checklist (CBCL) (Achenbach and Edelbrock, 1991; Verhulst et al., 1996) and the teachers, the aggression scale of the Teacher's Report Form (TRF) of the CBCL. To be considered aggressive the child had to obtain a  $T$  score greater than 67 (subclinical level is 67;  $M = 50$ ,  $SD = 10$ ) on the TRF or the CBCL. Based on this criterion the sample consisted of 23 aggressive children (14 from the Netherlands, 9 from Hungary) and 25 non-aggressive children (15 from the Netherlands, 10 from Hungary).

As in Study 2 we used the method of Dodge et al. (1997) to identify the reactive aggressive, the proactive aggressive and the mixed reactive/proactive group. It was not possible to classify groups with pure reactive aggressive children and pure proactive aggressive children. Therefore, we decided not to examine the difference between reactive and proactive aggressive children on social cognition.

##### *Procedure*

Testing was performed by a trained graduate student in clinical child psychology. Six stories of the SCST were administered. The same test procedure as in Study 1 and 2 was followed. After the SCST the subtest Picture Arrangement from the WISC-R was administered. Picture Arrangement consists of 17 series of three, four or five picture cards. The



tester laid down the picture cards in front of the child in the wrong order and the child had to find the right order within a set time limit.

**Results and Discussion**

First the influence of nationality on the group of aggressive and non-aggressive children was examined. MANOVA indicated that aggression and nationality were not significantly related to social cognitive skill and social cognitive level. There were no interaction effects between aggression and nationality. Therefore, the data of the Hungarian and the Dutch children were pooled for further analyses. There was no difference for sex in the aggressive nor the non-aggressive group,  $\chi^2(1) = 5.88, p = .015$ .

*Aggression and Social Cognition*

Do aggressive children perform on a lower social cognitive level than non-aggressive children? A MANOVA affirmed that there was a significant difference between the non-aggressive and aggressive children on the four social cognitive levels,  $F(6, 41) = 2.68, p = .028$ ;  $F(6, 41) = 3.39, p = .008$ ;  $F(6, 41) = 4.14, p = .002$ ;  $F(6, 41) = 3.36, p = .009$ . Figure 2.4 and Figure 2.5 show that aggressive children scored significantly lower on every social cognitive skill and every social cognitive level than non-aggressive children.

Fig.2.4.Social cognitive skills in non-aggressive and aggressive children on the SCST

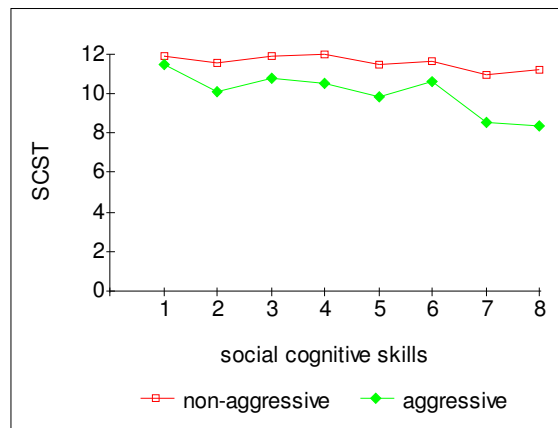
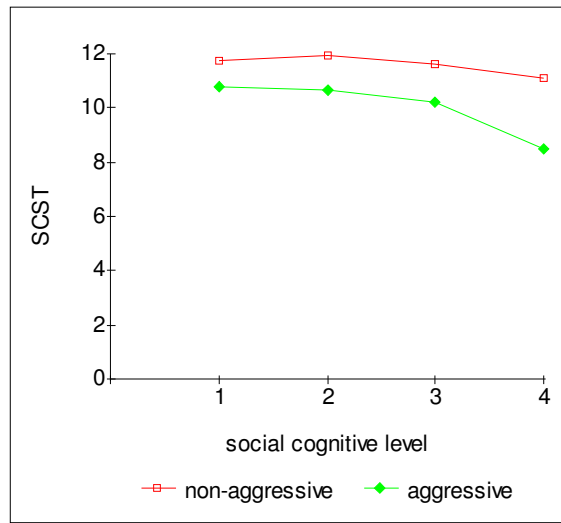


Fig. 2.5. Social cognitive level in non-aggressive and aggressive children on the SCST



#### *Aggression and Non-verbal Social Understanding*

Is there a relationship between the SCST and Picture Arrangement from the WISC-R? There was a significant positive correlation between SCST and Picture Arrangement ( $r = .54, p < .01$ ). The  $t$ -test showed a significant difference between aggressive and non-aggressive children on Picture Arrangement,  $t(46) = 3.93, p = .000$ . Within the non-aggressive group a correlation between the SCST and Picture Arrangement was found ( $r = .73, p = .01$ ). Within the aggressive group however, no significant correlation was found between the SCST and Picture Arrangement ( $r = .11$ ).

Thus, for the non-aggressive group and not for the aggressive group a higher score on Picture Arrangement was associated with a higher score on the SCST. This result is consistent with the notion that aggressive children have difficulty in verbalizing their thoughts and feelings and show a lack of non-verbal social understanding.

### **General Discussion**

A first question to be answered was whether the SCST discriminated between aggressive and non-aggressive children. The findings of all three studies indicate that aggressive children scored significantly more poorly on each social cognitive skill than non-aggressive children.

A second question to be answered was whether the scores on the SCST reflected the development of social cognitive skills as proposed by Selman (1980) and Gerris (1981). The average scores on the eight social cognitive skills of aggressive and non-aggressive children showed a descending trend as social cognitive skills increased in complexity. It should be noted, that scores on two out of the eight social cognitive skills were lower or higher than theoretically expected. However, the four social cognitive levels show a clearer trend in the developmental process of social perspectives than the social cognitive skills. Both from a theoretical and a therapeutic point of view we suggest that more research attention be paid to the developmental status and clinical utility of the eight social cognitive skills in aggressive and non-aggressive children.

A third question to be answered was whether the SCST differentiates between reactive and proactive aggressive children. It was expected that the proactive aggressive children would score significantly better on the SCST than the reactive aggressive children. No significant difference between the two groups was found however, possibly due to lack of power. Moreover, it proved very difficult to form subgroups of pure proactive and pure reactive aggressive children in clinical practice.

A fourth question to be answered in the present study was whether the results of the SCST would reveal a relation between chronological age and social cognitive developmental level. A significant difference was found between the group of 6-, 7- and 8-year-olds, the group of 9- and 10-year-olds, and the group of 11- and 12-year-olds. This is consistent with earlier studies of Selman and Byrne (1974) and Gerris (1981), who found an age-related sequence in social cognitive structure in the development of children.

The last question of interest was whether there would be a relation between verbal and non-verbal reasoning and social cognition. The results showed a significant correlation between the SCST and Picture Arrangement from the WISC-R. The notion that aggressive children have difficulty to verbalize their thoughts, feelings and intentions and show a lack in non-verbal social understanding was supported in Study 3.

Each child may be characterized by his/her own typical social cognitive pattern and may show typical weaknesses and strengths in the processing of social cognitive information. Deficits may be located on all steps of Dodge's model, but may also be located on just one step. As a group, aggressive children have been found to show cognitive deficiencies and distortions. For treatment purposes it may be more useful to try to describe the specific deficiencies in the processing of social cognitive information of the individual child and to know on which social cognitive level the problematic child shows deficiencies (Van Manen et al., 1999). The purpose of the SCST is to make such a refined assessment of social cognitive deficiencies possible, which may then guide more focused treatment efforts.

In sum, the first results with the SCST are promising, but more research is needed on its reliability and validity. Further, research attention should be paid to the specificity of the SCST for aggressive and non-aggressive children, and for children with other diagnoses (PDD-NOS, ADHD), who show particular problems in the social domain.



## Chapter 3

# **A Social Cognitive Intervention Program for Children with a Conduct Disorder, a Pilot-Study<sup>1</sup>**

### **Abstract**

In this chapter a social cognitive intervention program for children with a conduct disorder is introduced based on Dodge's social information processing theory. Conduct disordered children show deficits and distortions in social cognitive processes. Starting from Dodge's model it is shown how cognitive skills for solving social problem situations can be improved in conduct disordered children.

Research has been conducted with three groups of conduct disordered children of 10 - 13 years of age. Outcome of the social cognitive intervention program was evaluated using teacher and parents report and child self-report. The results for 9 out of 11 conduct disordered children were positive. Suggestions were made to improve the generalization of treatment effects to daily life.

### **Introduction**

The number of aggressive children and adolescents who steal, lie, intimidate others, deliberately destroy others' property, and who are truant

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<sup>1</sup> Published in: **Gedragstherapie**, 32 (1), pp. 33-56; March 1999

from school has been increasing in the past years (Junger-Tas, 1996). These children and adolescents are labeled as conduct disorder or oppositional defiant disorder according to the DSM- IV (Diagnostic and Statistical Manual of mental disorders, 4th edition; American Psychiatric Association - APA, 1994). The DSM-IV description of antisocial or oppositional-defiant behavior is a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three or more of the following criteria in the past 12 months: stealing, lying, truancy, destroying, fighting, bullying, threatening, intimidating others, being physically cruel to others or animals, fire setting, breaking into someone else's house, building, or car, running away from home, losing temper, blaming others for his own mistakes or misbehavior, being touchy or easily annoyed by others, or actively defying or refusing to comply with the requests or rules of adults. Conduct disorder causes clinically significant impairment in social, academic, or occupational functioning of children and adolescents (APA, 1994).

The prevalence of antisocial behavior among children and adolescents ranges from 4% to 10% (Kazdin, 1987). Antisocial behavior is not only stable over time within individuals (Loeber, 1982; Moskowitz et al., 1985; Olweus, 1979), but also continues across generations because of, for example biological and temperament characteristics, lack of supervision and control, inconsistent child rearing practices with harsh discipline (Junger-Tas, 1996), and bad social and economic context (Kazdin, 1987). Conduct disorders are often precursors of behavior problems in adolescence and adulthood (Robins, 1991), such as psychiatric disorders, alcoholism, drug abuse, criminal behavior, unemployment, dependency on welfare services, repetitive divorces and many hospital referrals. One third to one half of the referrals to institutes of mental health relate to aggressive children and adolescents (Verhulst, 1994).

To select promising treatments for conduct-disordered children one has relied on the following criteria: (1) the treatment should have a theoretical rationale and should be evidence-based (Kazdin, 1997), and (2) the treatment should be structured, specific and behaviorally oriented (Prins, 1995). The anger coping program (Lochman et al., 1991), problem solving skills training (Touchet et al., 1993), and parent management training (Patterson et al., 1992) fulfil these criteria. However, there has been made insufficient progress in developing effective treatments for these problems (Kazdin, 1997). Current treatment programs pay too little explicit attention to influencing social cognitive skills.

In this article, the results of a pilot study on the effects of a social cognitive intervention program for conduct disordered children, aged 10 to 13 years old, are presented. The treatment is based on the social information processing of conduct disordered children (Crick and Dodge, 1994; Kendall and Lochman, 1994). Based on the model of Dodge (1986), the improvement of cognitive skills for solving social problem situations takes a central position in the treatment. Dodge used the problem solving model of Goldfried and d’Zurilla (1969), the social information processing theory of Flavell (1968; 1985), and cognitive theories of information processing, in which the computer is used as metaphor for the problem solving individual (Newell and Simon, 1972; Hayes, 1981). The cognitive skills for solving different social problem situations, are presented by Dodge in the following five steps: (1) encoding of social cues, (2) interpretation of social information, (3) searching for the right response of the social problem, (4) evaluating and selecting of the optimal response, and (5) behavioral enactment of the chosen solution. When a child is confronted with a social cue, such as a provocation by another child in a game, it will encode this information at first with his senses (step 1). The child is making a mental representation of these cues, for example “threatening”, or “well intentioned” by using the acquired socialization rules, and may experience emotions such as fear and anger (step 2). The child is searching for a response. Various behavioral responses are selected from the long-term memory (step 3). These responses have been evaluated right or wrong for the specific situation (step 4), and one response is chosen to be enacted (step 5). These five steps represent the social information processing model of Dodge (1986). Later Crick and Dodge (1994) have added: evaluating of the enactment of the chosen solution (step 6), which is important for encoding new cues. This shows that now the social information processing model is circular and not linear as before. In many studies (e.g., Dodge, 1985; Crick and Dodge, 1994; Kendall and Lochman, 1994) it has been proposed, that conduct disordered children show deficits and distortions in processing social information. Their aggressive behavior is considered to be a consequence of deficits in the way they process information from their social environment. Each child has strengths and weaknesses in his social cognitive pattern. It is certainly not the case, that every conduct disordered child will have problems at each step of the model of social information processing.

The current social cognitive intervention program contains problem solving skills, social cognitive skills, anger coping and self-control techniques, and exercises, which are comparable with the child’s daily



situations to stimulate generalisation to daily life. This study will examine whether conduct disordered children treated by the social cognitive intervention program show at posttest in social problem situations, (a) less behavioral problems, (b) more self-control and less impulsivity, and (c) improved social cognitive skills.

## Method

### The social cognitive intervention program

The deficits and distortions in the social information processing corresponding with each step of the model of Dodge are translated into treatment components for conduct disordered children (Table 3.1).

Table 3.1.

Model Dodge	Deficits and distortions	Treatment components
1. Encoding of Cues	Selective attention; focus on situational information; sensational info; social sensitivity; recency bias cues	Attention to nonverbal cues; focus on dispositional information; listening; <i>identifying, discriminating</i>
2. Interpretation of Cues	Hostile attributional bias; affective and social perspective taking	<i>Differentiating, comparing</i> feelings and intentions of one-self and others
3. Clarification of Goals and Response Search	Generating solutions and choosing aggression	Problem-solving of interpersonal problems; <i>perspective taking, relating</i>
4. Response Decision	Evaluating of less consequences; aggressive response	Evaluating consequences and making a choice; <i>Coordinating; taking into account</i>
5. Behavioral Enactment	Limited social behavior	Self-control, self-observation reacting to provocation; cue-exposure; group entrance; self-talk

6. Evaluation	Self-concept doesn't change; do not worry about negative consequences	Self-evaluation, self- reinforcement; feedback therapist and peers
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*Step 1.* Conduct disordered children often fail in the encoding of relevant environmental cues. Very young children tend to focus on external situational information. Thus, conduct disordered children show a developmental deterioration with regard to the necessary skills needed to perceive social cues.

Children, judged by others as less aggressive and more prosocial, use more dispositional information (Cutrona and Feshbach, 1979). They also use information about someone's personality trait, or an object one pursues, besides information about the real situation, and the external perceptible traits and behavior of other children.

Conduct disordered children focus on sensational cues instead of neutral, less ambiguous cues (Pepler et al., 1991). They base their decisions on recency biased cues and ignore earlier cues (Dodge and Tomlin, 1987).

*Step 2.* Conduct disordered children are biased to attribute hostile intentions to other children. They show deficits in affective perspective taking (to understand the emotion of another) and in social perspective taking (to understand the thinking of another) (Dodge, 1993).

*Step 3.* Conduct disordered children are poor in generating adaptive solutions for problem situations. They sooner think of bribery, affect manipulation, or a physical, aggressive response. When the first solution does not work, it costs them much effort to think of an alternative response (Rubin et al., 1991).

*Step 4.* Conduct disordered children focus on socially unacceptable goals. Compared to non-aggressive children they consider the consequences of their behavior less often (Slaby and Guerra, 1988). They are especially convinced that aggression will lead to concrete reinforcers and believe that aggressive actions will stop the aversive behavior of peers (Perry et al., 1986).

*Step 5.* Conduct disordered children have a limited behavior repertoire in the enactment of social behavior.

*Step 6.* Conduct disordered children are egocentric in evaluating the response to their behavior. They do not worry about the negative

consequences of their behavior, such as the suffering of a victim or rejecting of peers.

The social cognitive intervention program, developed by the first author, is a group therapy for four to six conduct disordered children, aged 10 to 13 years. The program consists of 11 weekly sessions of 90 minutes for six children; 80 minutes for five children, and 70 minutes for four children. The program is protocol-driven and led by two therapists. Each session has its own goals. The program follows the steps of Dodge's model and its corresponding exercises (see below).

The objectives of the social cognitive intervention program are, (a) to decrease behavior problems in social problem situations, (b) to improve social cognitive skills, (c) to increase self-control, and (d) to decrease impulsive behavior.

A group format has been chosen, because the children can practice in a safe environment with the newly learned behavior in interaction with peers. The therapist may use the group process, which may proceed facilitating by initiating changes. Role-taking games and feedback from peers is an advantage to group therapy over individual therapy (Guevremont and Foster, 1993). Role-taking games in a group provide an unique situation to teach children to solve all kind of social problems, such as making friends, learning to help others, to become assertive, to find compromises, to be cooperative and anger management (Kendall and Braswell, 1993). Moreover, one may see how each child takes perspective of another person. By making this explicit, the children learn that other children may feel, think and act differently.

In the social cognitive intervention program various themes are presented, including problem awareness, listening to others, waiting for one's turn, asking attention for oneself at the right moment and giving attention to others, sharing, applying communication rules, observing and interpreting, recognizing feelings, giving compliments, learning to concentrate corresponding with self-control (self-observation, self-evaluation, self-reinforcement), taking perspective, learning to collaborate, learning to negotiate, learning to join a group, cue-exposure, learning to cope with provocation, accepting and giving criticism, social cognitive skills.

The social cognitive deficits and distortions will be dealt with in different parts of the treatment (Table 3.1). Conduct disordered children are more focused on situational information instead of dispositional information, therefore we paid attention to learning to recognize feelings and studying

situational and physical cues in the group treatment. The children learn to question themselves “which situational or physical cue causes the feeling”, and answering this. The conduct disordered children are taught to distinguish between bullying and teasing in a provocative, cheerful way. They learn in the group treatment to interpret the feelings, behavior and problems of others in a more appropriate way. Normal children develop considering bad-intentioned actions earlier than evaluating well-intentioned actions (Karniol, 1978; Dodge et al., 1984).

Referring to the model of Dodge, the treatment focuses on improving cognitive skills in solving different social problem situations. Therefore the conduct disordered children learn the following problem solving skills, (a) sensitivity to interpersonal problems, (b) defining the problem, (c) generating alternative solutions, (d) evaluating consequences and making a choice, (e) enacting the best solution, and (f) evaluating the enactment and considering the consequences for the social problem situation. The enactment of the following responses especially is exercised: showing congruent affection, good eye-contact, joining a group, and responding to a provocation of another child. The children are extra exposed to situations (cue-exposure), in which they have to control their impulses (self-control).

The eight social cognitive skills: *identifying, discriminating, differentiating, comparing, taking perspective, relating, coordinating, and taking into account*, which are printed in italics in Table 3.1, have been investigated by Gerris (1981) in an educational program (with a positive result) and are exercised in the present group treatment. The sequence of social cognitive skills in the development of a child from about 4 years until about 12 years corresponds to the steps of Dodge's social information processing. At the social cognitive skills: *identifying, discriminating, differentiating, and comparing*, the child is invited to reflect on the more externally observable traits and behavior of people. Having knowledge and deducing from internal, non-observable processes within yourself and the other, such as thoughts, feelings and intentions of the other, belong to the social-cognitive skills: *taking perspective and relating* (see dispositional information, Cutrona and Feshbach, 1979). At *coordinating and taking-into-account* it is expected, that the child may survey the situation, both from the perspective of one child and from that of another child, and that it may understand what the relation will be between the two children, when the behavior changes, and how the perspectives of the children will change. For an extensive review of these social cognitive skills we refer to Gerris et al., (1980).

## **The therapist**

It is supposed that the therapist is a model for the children. Modeling is an integrated component of the intervention program; a verbalizing coping model is preferred (Kendall et al., 1991). The model shows no perfect behavior, but makes mistakes and shows in what way one may find the best solutions. The therapist may use for example self-disclosure as a therapeutic technique. He verbalizes the six steps of Dodge's model in the group therapy. The therapist also models the skill problem-solving. He does not always know what he should do, but waits. He considers each situation and looks for alternative solutions, evaluates each possibility and examines the consequences of the various alternatives. In this way the therapist is a model, that inhibits speedy and thoughtless, mostly aggressive actions.

The children are frequently encouraged and reinforced for positive behavior. The therapist is aware of the need to reinforce the children in various ways, otherwise there may appear saturation. The therapist has to be aware not to punish, tease or challenge the aggressive children. This is what happens in daily situations with adults and peers. Only, when an aggressive child shows very annoying behavior, the therapist may choose a time-out (1 to 2 minutes) and may put the child on a chair in the therapy room. In general, one keeps pace into the sessions. With a good structured program there is less risk for annoying or interfering behavior.

The quality of the relation between the therapist and the aggressive child plays an important role in the efficacy of the program (Van Lieshout and Haselager, 1995). The therapists should strive after (a) convergence of goals with the children, (b) limiting and at the same time offering autonomy to the children, (c) a friendly, warm understanding of the aggressive children, which is based upon mutual confidence.

The parents and the teacher receive information in a session on the theory, objective and the course of the treatment. On this occasion the therapist takes care of relabeling; he introduces a different interpretation of the thinking and behavior of the child.

Before the start of the treatment, the parents sign a treatment contract. They agree not to reinforce aggressive behavior at home. In the group therapy the child acquires new skills which he should be able to practice at home.

## Participants

Sixteen conduct disordered children, aged 10, 11, or 12 years old, participated in this study. They were divided into three groups with 5, 5, and 6 children respectively; one girl took part in the study. The treatment took place at an outpatient mental health clinic. The children were selected from the regular patient population of this clinic. All children met the criteria of the DSM-IV (APA, 1994) for conduct disorder, oppositional defiant disorder or disruptive behavior disorder not otherwise specified. To determine the diagnosis, a Semi-structured Clinical Interview for Children and Adolescents (SCICA) (McConaughy and Achenbach, 1994) was conducted and a structured interview was held with the parents, that was composed of questions on the characteristics of the DSM-IV description of conduct disorder and oppositional defiant disorder.

Several exclusion criteria were used: an IQ less than 85 (WISC-R), younger than 9 years old and older than 12 years; visiting secondary school; learning disorder; or treated by group therapy; an Attention Deficit Disorder with Hyperactivity (ADHD), or Pervasive Developmental Disorder (PDD), which is dominant over the conduct disorder. One third to one half of the referred children didn't fulfil the criteria for participation.

## Measures

To assess the effect of the social cognitive intervention program, measures were completed before and after the treatment 16 weeks later. It is a one-group pretest-posttest design.

The conduct disordered children were selected by the DSM-IV, and the SCICA. The SCICA suits the clinical practice. The Dutch version of the SCICA is a reliable (internal consistency, test-retest reliability, and inter-rater reliability) and a valid semi-structured interview to assess psychopathology (Kasius, 1997). The best impression of the conduct-disordered child is collecting information of various informants (parents, teachers, and child).

Teachers completed the Taxonomy of Problematic Social Situations for Children (TOPS). Parents completed the Child Behavior Checklist (CBCL) and were phoned every week for completion of the Weekly Report. Children reported their social behavior on the MESSY (Matson Evaluation of Social Skills with Youngsters), and evaluated their own behavior on the Weekly Reports. Children were observed at school by independent observers during a structured situation (task) and a semi-structured situation (gymnastics).

### Behavior Checklist for parents

To assess the aggression problems of the children, parents completed the Child Behavior Checklist (CBCL 4-18) (Verhulst et al., 1996). The CBCL is a psychometric adequate measure, which is used in intervention research as a dependent measure. Normative data for clinical and non-clinical groups are available (Verhulst, 1994). The CBCL consists of 20 items that assesses social skills (activities, social relations, and school performance), and 118 items on behavior and emotional problems. The items are scored on a scale ranging from not true (0), to sometimes true (1) or often true (2). The checklist provides scores on eight problem scales and identifies internalizing and externalizing problems, including delinquent and aggressive behavior.

### Behavior checklist for teachers

Behavior problems in the classroom are assessed by the TOPS (Dodge et al., 1985; Cuperus, 1997). The teacher rates the child on specific social problem situations, which are represented by the following six factors: joining, reacting on provocations, responding to failure, responding to success, social expectations, and teacher expectations.

Cuperus (1997) investigated the TOPS with Dutch schoolchildren, aged 6 to 12 years. Factoranalysis revealed four factors: (1) Response to exclusion, (2) Response to failure and success, (3) Social expectations, (4) Teacher expectations. These four factors showed similarities with the six factors from the original version (Dodge et al., 1985). The Dutch version of the TOPS consists of 18 items. The TOPS has high internal consistency, convergent validity, and differentiates between socially rejected and socially competent children (Dodge et al., 1985). The TOPS has proven to be sensitive to training effects (Christopher et al., 1991).

### Child measures

The MESSY (Matson et al., 1983) was translated in Dutch by Blonk et al. (1993). This questionnaire is scored by the children on the factors: Appropriate social skill, inappropriate assertiveness, impulsive/recalcitrant, overconfident, and jealousy/withdrawal. Blonk et al. (1993) found two factors: appropriate social skills and inappropriate social skills.

The MESSY consists of 62 items. Each item is scored on a 5-point scale ranging from 1 (never) to 5 (always). Internal consistency, test-retest reliability, and construct validity are good (Blonk et al., 1993).

### Weekly Reports for the parents and the child

Weekly Reports are an important part of the treatment. Before the treatment has started the parents have chosen five problem behaviors from a variety of problems which are grouped by the therapist based on the intake interview. The child has to agree with the problem behaviors. If this is not the case other problem behavior will be chosen. The child completed the Weekly Report at the start of every treatment session. The parents were phoned every week at a fixed time for completion of the Weekly Report. Weekly Reports of five target behavior problems of each child on a 3-point scale ranging from 0 (never), 1 (sometimes), to 2 (very often). Examples of target behavior problems are: blames others, or gets mad for no good reason.

### Behavioral observations by independent observers

For the behavioral observations we used the observation scale of Verbout and Zaal (1989). The observation scale consists of four categories – social, neutral social, solitary, antisocial – which were derived from Dodge et al. (1982). We added to the 20 behavior descriptions *reactive/proactive aggressive* as a fifth behavior category, so the behavior observation scale consisted of 26 behavior items. Two observers were instructed by the teacher to observe four children. The observers did not know which child of the four children participated in the treatment. The observers were introduced to the children by the teacher as “teachers-in-training”.

## Results

The results of eleven conduct disordered children, aged 10 to 13 years old, are presented. From the sixteen children who participated in the three treatment groups not all pre-treatment and post-treatment scores were available. Data from five children on the pre - or posttest of one of the dependent measures were missing. The three groups which received the social cognitive intervention program completed the TOPS (teacher measure), the MESSY (child measure), and the CBCL (parent measure).



Table 3.2

Means and standard deviations on a teacher measure (TOPS), a child measure (MESSY), and a parent measure (CBCL) on pre- and posttest ( $n = 11$ ).

Dependent measure		Pre test	Post test	<i>t</i> - value	significant level
<b>TOPS</b>					
Response to exclusion	m s.d.	3,67 0,69	3,52 0,87	.63	.271
Response to failure + success	m s.d.	2,73 0,54	2,57 0,53	.96	.180
Social expectations	m s.d.	2,80 0,78	2,55 0,76	1.19	.130
Teacher expectations	m s.d.	3,23 0,65	2,92 0,89	1.61	.069
<b>MESSY</b>	m	190,6	200,5	1.62	.068
Total score	s.d.	26,16	23,62		
<b>CBCL</b>					
Withdrawn	m s.d.	69 8,53	58,7+ 9,87	5.44	< .0005*
Anxious/ Depressed	m s.d.	70,2 8,75	64,6+ 8,40	2.07	.033*
Social Problems	m s.d.	66,7 9,45	57,9 7,95	3.80	.002*
Attention Problems	m s.d.	67,1 10,33	60,9+ 7,04	2.59	.014*
Delinquent Behavior	m s.d.	63,8 10,62	57,5 9,81	2.24	.025*
Aggressive Behavior	m s.d.	71,8 11,39	61+ 7,62	3.21	.005*
Internalizing	m s.d.	69,2 7,96	60,7 11,86	3.71	.002*
Externalizing	m	68,9	59,4+	3.44	.003*

	s.d.	9,23	9,52		
Total score	m	70,1	60,8	3.74	.002*
	s.d.	8,06	11,33		

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\* = statistically significant,  $p < 0.05$ ; + = clinically significant.

TOPS = Taxonomy of Problematic Social Situations for children; MESSY = Matson Evaluations of Social Skills with Youngsters; CBCL = Child Behavior Checklist.

The differences between the means on pre - and posttest were evaluated using  $t$ -tests ( $df = 10$ ;  $p < 0.05$ ). The results are presented in Table 3.2. There is a significant difference between the means on pretest and posttest of all the problem scales of the CBCL.

We evaluated the clinical significance on the problem scales of the CBCL, i.e. no deviant behavior according to the norm criteria. The cut-off scores of the CBCL on the problem-scales are  $> 70$  (clinical range) and between 67 and 70 (borderline range). For internalizing, externalizing, and total score  $> 63$  is within clinical range and between 60 and 63 is within borderline range. The mean scores of the CBCL at posttreatment indicated a clinically significant improvement on the scales withdrawn, anxious/depressed, attention problems, aggressive behavior, and externalizing.

The means on the posttest of the TOPS indicated a tendency to improvement, but were not significant. Although the means on the posttest of the MESSY indicated that the children became more socially competent, the difference between the pre - and posttest scores were not statistically significant.

When we examined the scores on the dependent measures of the eleven conduct disordered children at an individual level, it appeared that nine children showed an improvement after the intervention. Two children showed no improvement. Improvement was defined as a total positive score on the various dependent measures. For example, child B was strongly improved according to the parents (CBCL, and Weekly Report), the teacher reported improvement, the child showed a decrease (in MESSY, and Weekly Report), and the independent observers reported an improvement. Therefore, based on the overall results of child B, there was improvement after the intervention program.

The effect of the social cognitive intervention program was evaluated only in one of the three treatment groups ( $n = 6$ ) with Weekly Reports and behavioral observations. The Weekly Reports, which were completed by the parents and the child showed a decline in problem behavior. The means on

the pre - and posttest of the Weekly Reports (Fig. 3.1) indicated an improvement by all six parents and only one of the six children reported improvement. Two children indicated no improvement and three children indicated a decrease.

The data of the behavioral observations of four out of the six children indicated less antisocial behavior at posttest (Fig. 3.2), less proactive/reactive aggressive behavior and more social behavior.

The problem behavior of child A has been diminished as reported on the Weekly Reports and the behavioral observations confirmed this on the categories antisocial behavior and proactive/reactive aggressive behavior. Remarkably, there was no improvement on the behavioral observations of child A's social behavior.

Fig. 3.1. Mean scores of the Weekly Reports on pre- and posttest

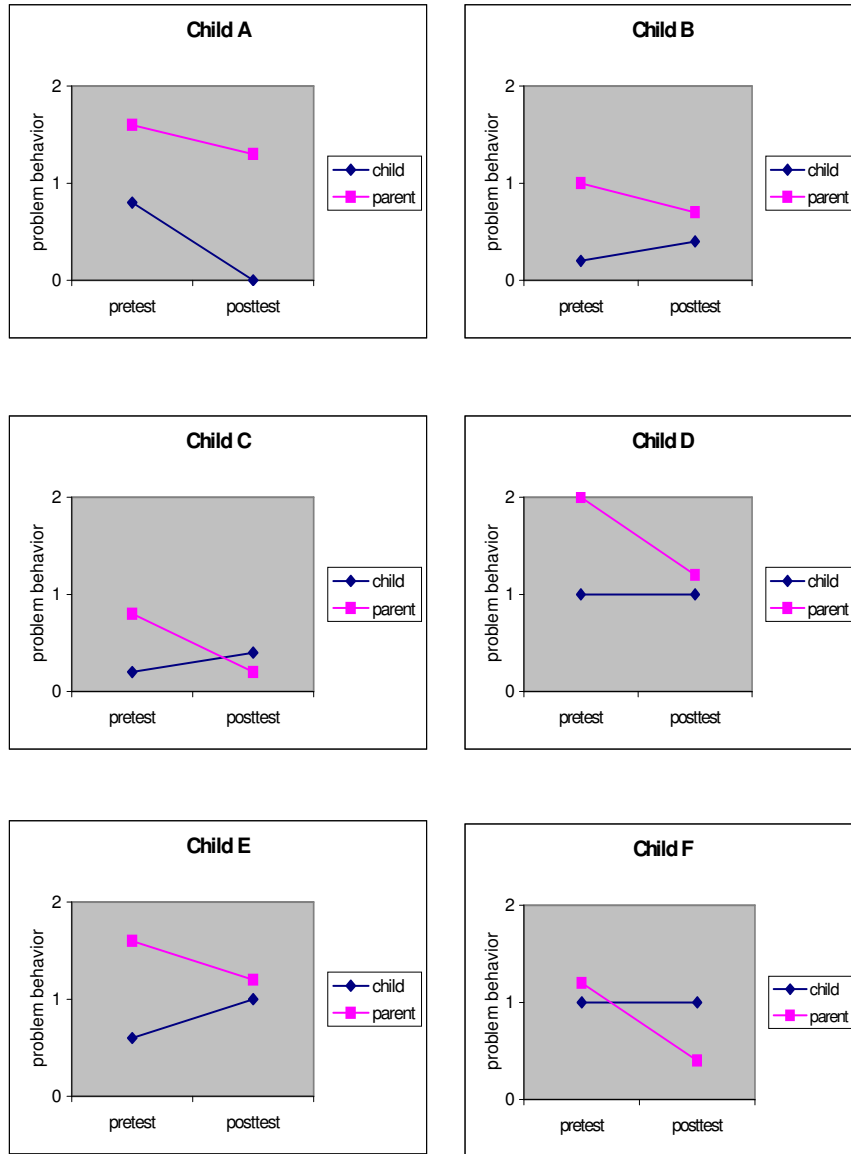
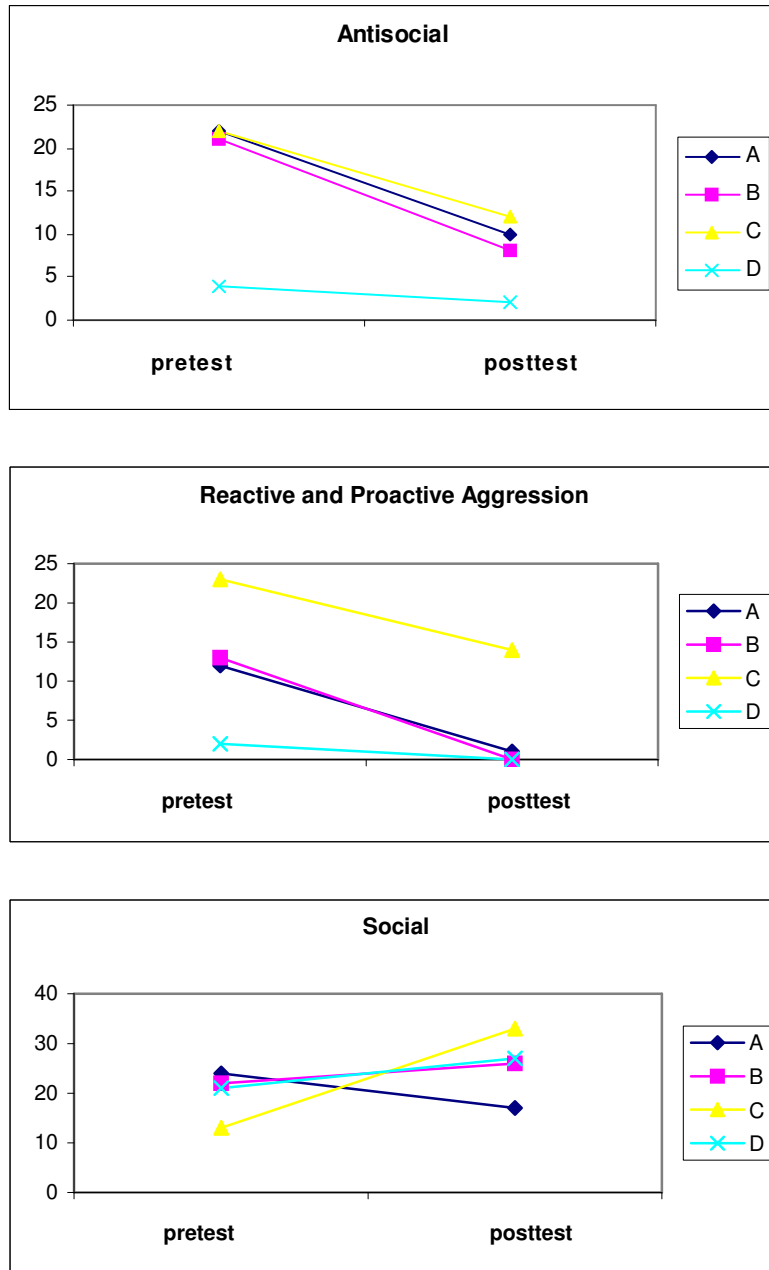


Fig. 3.2. Graphics of the behavioral observations: pre- and posttest scores of four conduct disordered children A, B, C, and D on three behavioral categories: antisocial, proactive and reactive aggressive and social (Swijghuisen and Bal)



## Discussion

The social cognitive intervention program for conduct disordered children showed positive results for the majority of the treated children. The means on the posttest of the CBCL – on externalizing and aggressive behavior, as well on withdrawn and anxious/depressed – were statistically and clinically significant. Moreover, for one group the scores on the posttests of the Weekly Reports (six children) and the behavioral observations (four children) showed a decline in antisocial behavior. The means on the TOPS and the MESSY at posttest showed an improvement, but were not significant.

The social cognitive intervention program intervenes in the social information processing of the conduct disordered children. Important differences between this program and other intervention programs (for example, Camp and Bash, 1981) are, that (a) children do not learn to respond in one way in a specific social problem situation, but are taught a general way of social information processing in order to solve social problems on their own, and (b) explicit attention is paid to the learning and practicing of social cognitive skills to diminish deficits and distortions in the social information processing. The social cognitive intervention program fulfils the criteria of a promising treatment for conduct disordered children because of its theoretical rationale, and structured, specific, behavioral character. The criterion “needs to be effective” does not apply here, because the present pilot study shows several methodological shortcomings. There are for example no control groups, no follow-up data and the number of participants was quite small.

In our treatment of the conduct disordered children explicit attention has been paid to the child's problem awareness. Completing the Weekly Report at the start of each therapy session, and practicing self-evaluating behaviors contributes to this awareness. It has been suggested in the literature (Kendall et al., 1991; Guevremont and Foster, 1993) that increased problem awareness results in a better generalization of behavior change to daily life.

Conduct disordered children respect their own rights, but less the rights of other children. They tend to present themselves better than they are.

In group therapies of conduct disordered children the quality of the therapists needs more concern. One of the therapists observed, that the quality of the therapist in the non-specific therapeutic skills and in the therapeutic process of the social cognitive intervention method should have more attention. In the preparation phase and during the treatment the therapists should get more feedback on this subject.

In this group treatment less has been taken into account with regard to the distinction between reactive aggressive children and proactive aggressive children (Dodge, 1991). Proactive aggressive children use aggression instrumentally to achieve their goals. Reactive aggressive children respond aggressively to others, because they attribute the intentions of others in a first reaction as hostile. The proactive aggressive child uses physical power to dominate other children and is aggressive to obtain an object. The reactive aggressive child feels quickly threatened and is afraid. It will react a priori in a defensive and aggressive way. Research from Dodge and Coie (1987) shows that reactive aggressive children feel inclined to attribute hostile intentions to peers in ambiguous situations. Proactive aggressive children do not differ from the group non-aggressive children in evaluating the behavior of peers in ambiguous situations. Dividing aggressive behavior in relevant subgroups is not only of theoretical importance, but is also important for the therapist for specific interventions (Prins, 1994). With the composition of treatment groups one should take this factor into account.

Antisocial behavior in childhood and in adolescence predict antisocial behavior in adulthood (Offord and Bennett, 1994). Research on conduct disorder suggests that it is very much like a chronic condition in terms of its development and course (Kazdin, 1995). Chronic disease requires long term care. The generalization effect will be larger and relapse in old behavior through stress and negative life-events will be fewer, when conduct disordered children are offered short term booster sessions.

We propose to offer the conduct disordered children and their parents booster sessions after the social cognitive intervention program. The booster sessions consist of an individual program of five sessions, which can be filled in with exercises for each age from eight till eighteen years old. The exercises are meant to learn: problem solving skills, anger coping skills, self-control techniques, social-cognitive skills and self-regulation skills. In the individual treatment one may focus on the specific deficits and distortions in the social information processing of each conduct disordered child.

In the future, we will focus on: (a) follow-up research to control the generalization effect to daily life situations of the child, and (b) booster sessions for the conduct disordered children because of the chronic disease character of conduct disorder to retain, to enlarge and to continue the improvement by the treatment in the following developmental phases of the child.

In sum, the results of this pilot study are positive, and the social cognitive intervention program may be a useful part of an integrated treatment package for conduct disordered children (Van Manen and Prins, 1998), in which the treatment of the parents/family and the teacher also takes place. We have started a randomized controlled trial with three conditions (1) the social cognitive intervention program, (2) a social skills training, and (3) a waitlist control group. We hope to confirm the improvements of the pilot study also statistically. The preventive effect of the social cognitive intervention program may contribute to the solution of the ongoing, extensive problems which conduct disordered children and adolescents cause.





## Chapter 4

# **Reducing Aggressive Behavior in Boys with a Social Cognitive Group Treatment: Results of a Randomized Controlled Trial<sup>1</sup>**

### **Abstract**

**Objective:** To evaluate the effectiveness of a social cognitive intervention program for Dutch aggressive boys and to compare it with a social skills training and a waitlist control group.

**Method:** A randomized controlled treatment outcome study with 97 aggressive boys (aged 9 – 13 years) was presented. An 11-session group treatment, a social cognitive intervention program ( $n = 42$ ) based on Dodge's social information processing theory was compared with social skills training ( $n = 40$ ) and waitlist control group ( $n = 15$ ). Measures of aggressive behavior, self-control, social cognitive skills and appropriate

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social behavior were completed before and after the group treatment and at 1-year follow-up.

**Results:** The outcome of both treatment conditions indicated (1) a significant increase in appropriate social behavior, social cognitive skills, and self-control, and (2) a significant decrease in aggressive behavior. There was a significant difference between treatment and no-treatment and between the social cognitive intervention program and social skills training on various child, parent, and teacher measures.

**Conclusions:** The expectation that focusing on the deficits and distortions in social cognitive processes (social cognitive intervention program) instead of merely focusing on social skills (social skills training) would enhance the effectiveness was supported on child, parent, and teacher measures. At 1-year follow-up, the mean effect sizes of the social cognitive intervention program and social skills training were 0.76 and 0.56, respectively.

### **Introduction**

Although parent management training is one of the most promising treatment modalities for aggressive children (Burke et al., 2002), many parents may have pessimistic attitudes regarding the locus of the problem, its stability, and its possible resolution (Durlak et al., 2001). For instance, parents of children with behavior problems tend to believe that the cause and hence the solution of the child's difficulties lies within the child, not within the parent or in parent-child interactions. Some parents prefer to get help for their child and not for themselves. Social skills training (SST) matches parental preference in this case. SST is a widely used intervention in the treatment of children with internalizing and externalizing problems. Meta-analyses (Farmer et al., 2002; Quinn et al., 1999) have found small to moderate mean effect sizes at post-treatment, weak long-term effects, and more effect for socially withdrawn than for aggressive children. Measures of disruptive behavior and aggression produced a low mean effect size of 0.13 (Quinn et al., 1999).

Cognitive behavior therapy has been effective for children with externalizing problems (Durlak et al., 2001). However, cognitive behavior

therapy has not been shown to be effective for attention-deficit/hyperactivity disorder (ADHD) (Pelham et al., 1998). This justifies a closer look at two meta-analyses of cognitive behavior therapy interventions for aggressive children (Bennett and Gibbons, 2000; Yoon et al., 1999). These analyses provide a clear view on the necessary ingredients of effective treatment for aggressive children. Bennett and Gibbons (2000) concluded that child-based cognitive behavior therapy interventions (a) have a small to moderate effect on decreasing antisocial behavior, and (b) are more effective for older elementary school-age children and adolescents than for younger elementary school-age children.

In the past decade, cognitive deficits and distortions of aggressive children have been extensively studied from the perspective of Dodge's model of social information processing (Crick and Dodge, 1994). A meta-analysis by Yoon et al. (1999) compared the effect sizes for four different stages of Dodge's model of social information processing between aggressive and non-aggressive children. The results of this study confirmed that aggressive children show a broad pattern of deficits and biases in social information processing. Medium effect sizes were found for each of the four processes. Yoon et al. (1999) suggest, that when social cognitive skills training interventions fail, it may be a result of the limited focus of such programs. Therefore, interventions should combine skills training with interventions that target the underlying social information processes of aggressive children to enhance the effectiveness.

This study was designed to examine the effectiveness of a social cognitive intervention program (SCIP) that was specifically developed for aggressive children to address their social cognitive deficits and distortions related to all stages of Dodge's model of social information processing. The social cognitive deficits and distortions related to each step of Dodge's model were transformed into treatment components such as problem-solving abilities, social cognitive skills, and self-control techniques (see Table 4.1). We added a developmental aspect to Dodge's model, especially in the child's use of social cognitive skills (see Van Manen et al., 2001), and paid attention to the role of emotion in social information processing,

corresponding to the integrated model of emotion processes and cognition in social information processing recently proposed by Lemerise and Arsenio (2000).

Table 4.1.  
The Integration of SCIP Treatment Components into the Dodge model

Theoretical Model	Treatment Components		
Model Dodge (Crick and Dodge, 1994)	Problem Solving (Spivack et al., 1976)	Social Cognition (Selman, 1980) (Gerris, 1981)	Self-Control (Kanfer , 1977)
1. Encoding of cues	Sensitivity to interpersonal problems	Egocentric level: Identifying Discriminating	
2. Interpretation of cues	Defining the problem	Subjective level: Differentiating Comparing	
3. Clarification of goals and response search	Generating alternative solutions	Self-Reflective level: Perspective taking Relating	
4. Response decision	Evaluating consequences and making a choice	Mutual level: Coordinating Taking into account	
5. Behavioral enactment	Enacting the best solution		Self-observation
6. Evaluation	Evaluating the enactment		Self-evaluation
			Self-reinforcement

This study is the first randomized, controlled trial to investigate the effectiveness of an SCIP for aggressive boys based on Dodge's model of

social information processing, and to compare it with an SST and a waitlist (WL) control group. We expected that focusing on the deficits and distortions in social cognitive processes (SCIP) instead of merely focusing on social skills (SST) would enhance the effectiveness.

## **METHOD**

### **Participants**

The participants were 97 aggressive boys, aged 9 to 13 years ( $M = 11.2$ ,  $SD = 0.93$ ). Ethnic composition sample was 79.5 % White, 10 % Moroccan, 6.3 % Turkish, and 4.2 % Surinamese-Caribbean. The socio-economic level was lower to middle class based on the highest level of education of the parents and on their profession/occupation.

The boys were referred for treatment to outpatient mental health clinics in various cities in the Netherlands. They were admitted to the program if they met the DSM-IV criteria (American Psychiatric Association, 1994) for conduct disorder (CD), oppositional defiant disorder (ODD) or disruptive behavior disorder-not otherwise specified (DBD-NOS). To be included in this study, the boys had to have a total WISC-R IQ score above 85, based on the full scale IQ (Wechsler Intelligence Scale for Children Revised Dutch version) (Vandersteene et al., 1986; Wechsler, 1974), and no learning disorder. Further, boys were included if their aggressive behavior and/or delinquent behavior scores on the Child Behavior Checklist (CBCL) (Achenbach, 1991) or Teacher's Report Form (TRF) were dominant over the attention problems scores, i.e., scores on the problem-scales aggressive behavior and/or delinquent behavior should be in the clinical range, and the score on the problem-scale attention problems in the nonclinical range. ODD/CD boys with a few ADHD characteristics according to the DSM-IV criteria, but without an ADHD diagnosis, were not excluded.

### **Measures**

Dutch translations were available for all study measures with the exception of the Teacher Rating Scale for Reactive and Proactive Aggression (TRA).

To assess the aggression problems of the children, parents completed the CBCL (Achenbach, 1991). The CBCL is a 118-item scale that provides scores on eight problem-scales and identifies internalizing and externalizing problems. A parallel form of the CBCL, the TRF was also used. Dutch normative data for both CBCL and TRF are available (Verhulst et al., 1996).

The Taxonomy of Problematic Social Situations for Children (TOPS) (Dodge et al., 1985) is a 44-item measure that asks teachers to rate each child about how often the child responds in an inappropriate manner to a variety of specific situations or tasks. Factor-analytic studies with Dutch samples revealed four clusters: response to exclusion, response to failure and success, social expectations, and teacher expectations. The TOPS has high internal consistency and convergent validity, and differentiates between socially rejected and socially competent children (Cuperus, 1997).

The TRA (Brown et al., 1996) contains 21 antisocial items covering the two factors, proactive aggression and reactive aggression factor and a covert antisocial factor. The internal consistency and discriminant validity are good.

The Self Control Rating Scale (SCRS) (Kendall and Wilcox, 1979) completed by teachers, is a 33-item scale designed to assess the behavioral (response inhibition) and cognitive (problem-solving) components of self-control. The reliability and validity of the SCRS with teachers as raters are high (Van de Winkel, 1986).

Weekly reports on five target behaviors were tailored for each child separately. Before treatment, parents chose five problem behaviors from a variety of problems that had been grouped by the therapist, based on the intake interview. Each child had to agree with the selected problem behaviors and that they should be changed. If not, other problem behaviors of that particular child were selected. The same target behaviors were used across all informants for a given child. For each target behavior, a 5-point scale was used, ranging from 1 (never) to 5 (always). Examples of target behavior problems are: blames others, gets mad for no good reason, steals money, changes rules to win, and won't admit his fault. The Weekly Report total score consists of the mean score of the five target behaviors. The

parents and the child's teacher were phoned each week at a fixed time by one of the therapists to complete the weekly report. The first telephone call was a week before the start of the treatment and the last call was made in the week of the last treatment session. The children filled out Weekly Reports at the start of every treatment session. They received no contingencies based on the Weekly Report.

The Weekly Report was not administered to the WL control group.

The Matching Familiar Figures Test (MFFT) (Kagan et al., 1964) assesses reflectivity/impulsivity. The child has to choose in a 12-item task which of six similar figures is identical to a criterion figure. The child continues to make choices until the identical match is found. The total response errors are recorded.

Matson Evaluation of Social Skills with Youngsters (MESSY) (Matson et al., 1983) is a self-report questionnaire consisting of 62 questions that provides scores for positive social behaviors, negative social behaviors and total overall social skills. Factorial studies with Dutch samples found two factors: appropriate social skills and inappropriate social skills (aggressive/antisocial behavior). The Dutch version of the scale has good internal consistency, test-retest reliability and construct validity (Blonk et al., 1993).

The Social Cognitive Skills Test (SCST) (Van Manen et al., 2001) assesses social cognitive skills and consists of six short stories with corresponding pictures. The SCST is based on the assumption that social cognitive development takes place following a sequence of eight social cognitive skills, which are hierarchical in such a way that cumulative learning can occur. Each story of the SCST measures eight social cognitive skills by systematically questioning the child. Research has shown that the SCST discriminates between aggressive and non-aggressive children (Van Manen et al., 2001).

### **Procedure**

The parents and their child were referred to an outpatient community mental health clinic. In the intake interview, special attention was paid to



indications for aggression problems or CD according to the clinical guidelines of the mental health clinic. Parents completed the CBCL and teachers completed the TRF. If scores on the CBCL, TRF, or both indicated a clinical level of aggressive behavior or delinquent behavior, a cut-off score of  $> 70$ , the parents were invited for a structured interview that was composed of questions based on the DSM-IV criteria for CD, ODD, or DBD-NOS. The diagnostic interviewers were licensed clinical child psychologists trained in the use of this checklist. Children were accepted for the study on the basis of the inclusion and exclusion criteria. Parents signed informed consent forms and the child gave his assent. One week before and after the end of the treatment, measures were administered to the child, parents and teacher to evaluate treatment outcome.

After selection, parents and children were informed when the therapy would start. They were randomly assigned to either one of three conditions: SCIP, SST, or WL control group but were not told that they were to be randomly assigned to one of three conditions. Parents of the SCIP and SST children were informed about the start of the therapy, and the parents of the WL control group children were told that treatment would start in approximately 11 weeks. Participants were randomly assigned to the SCIP ( $n = 42$ ), the SST ( $n = 40$ ), or the WL control group ( $n = 15$ ). After the first round of treatment, the WL control group children and the newly selected children were pooled and then randomly assigned to either SCIP or SST. The interventions were led by licensed clinical child psychologists in various cities in the Netherlands. The same therapists administered both treatments. Therapists were trained by role-play and modeling in the use of the manuals of SCIP and SST. Therapist supervision continued throughout the course of the treatment period through individual meetings with therapists, group meetings, and weekly case review, using material from the audio- and videotaped sessions.

### **Treatments**

A group treatment format ( $n = 4$ ) was chosen so that children could practice in a safe environment, interacting with children of the same age.

Small groups provide opportunities for role-playing and peer feedback. Moreover, in a group, children are more often exposed to situations (cue-exposure) in which they need to control their impulses (self-control). This offers them opportunities to exercise solving social problems in daily life situations (generalisation) such as making friends, joining a group, controlling anger, and helping other children in an appropriate way. The SCIP and SST both consisted of 11 weekly sessions of 70 minutes each.

#### *The Social Cognitive Intervention Program*

A detailed treatment manual describing the theoretical framework, goals, and exercises with a session-by-session description is available in Van Manen (2001). (SCIP is available on the Journal's Web site at [www.jaacap.com](http://www.jaacap.com) via the Article Plus feature). The SCIP is a cognitive-behavioral treatment and consists of four major components (a) social information processing, (b) problem solving abilities, (c) social cognitive skills, and (d) self-control skills (see Table 4.1). The treatment sessions followed the sequence of six steps in Dodge's model. The problem-solving skills and the social cognitive skills (Table 4.1) were integrated into the sequence of these six steps. For the behavioral enactment and evaluation steps of the model, three self-control components, i.e., self-observation, self-evaluation, and self-reinforcement, were then integrated.

Each session (see Table 4.2) started with discussing any problems or issues from the previous week related to homework, followed by exercises, and ending with an evaluation of the session and a hand-out describing "what did we do" and "what can I do with it". Also weekly homework tasks were set at the end of each session in which children were asked to practice their newly acquired skills outside the group environment.

The therapists used prompts, cognitive modeling (verbalizing the problem solving steps), role-play positive reinforcement, time-out procedure, and coaching using video feedback.

Table 4.2. **KEY TREATMENT COMPONENTS<sup>2</sup>**

<b>Session</b>	<b>Social Cognitive Intervention Program</b>	<b>Social Skills Training</b>
<b>1</b>	Decoding verbal and nonverbal cues, internal and external cues.	Getting acquainted with group objective, participants, rules, and token-economy.
<b>2</b>	Decoding visual and auditory cues; communication rules; social cognitive skills: identifying and discriminating.	Social skills listening and greeting; choosing group name; introducing yourself in role-play.
<b>3</b>	Interpreting external and internal cues; social cognitive skill: differentiating.	Listening and inquiring; communication rules; expressing basic feelings.
<b>4</b>	Clarification of goals and response search; first steps of problem solving; soc cog skill: comparing; discriminating and labeling emotions in oneself and others.	Closed and open questions, and other conversation skills; giving and receiving compliments.
<b>5</b>	Response decision after evaluating consequences; social cognitive skills: differentiating and comparing; giving and receiving compliments.	Recognizing and verbalizing one's feelings; observing verbal and nonverbal cues in behavior of peers.
<b>6</b>	Problem solving steps 3 and 4; social cognitive skill: perspective taking; self-control skills.	Monitoring feelings; identifying differences among peers in same social situations.
<b>7</b>	Response decision and enactment of best solution. Soc cog skill: relating; self-control, self-instruction; analyzing a provoking situation by anger control.	Joining a group; reacting to rejection; role-play in different social situations; accepting criticism.
<b>8</b>	Problem solving steps 4-6; social cognitive skill: coordinating.	Negotiating; learning to be assertive, not aggressive.
<b>9</b>	Using past experiences in new situations; social cognitive skill: taking into account; self-control with cue-exposure.	Reacting to teasing; dealing with having an argument.
<b>10</b>	Stand up for yourself using self-control; coping with provocation.	Responding to teasing and criticizing; cooperation.

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<sup>2</sup> More information can be found in: Van Manen et al. (2001), and Van Manen (2001).

- |    |                                                          |                                                       |
|----|----------------------------------------------------------|-------------------------------------------------------|
| 11 | All-in-one session exercise;<br>evaluation and feedback. | Evaluation and feedback;<br>evaluating token-economy. |
|----|----------------------------------------------------------|-------------------------------------------------------|

### *The Social Skills Training*

A detailed outline of the 11 sessions of the SST program is available in Van Manen (1999). The SST is a behavioral training focused on teaching children various social skills to improve interaction with peers and increase acceptance. The SST used various behavioral techniques, such as modeling, role-play, prompts, and reinforcement. Each treatment session was focused on teaching a particular social skill such as greeting and listening skills, conversation skills with attending to verbal and nonverbal cues, recognizing and verbalizing feelings, joining in and reacting to rejection, negotiating, and reacting to being teased and criticized (see Table 4.2). Response cost was also used by the therapists. At the beginning of each session, all children were given tokens. They could earn and lose tokens depending on their behavior in the session. At the end of each session, children could exchange tokens for small prizes. Moreover, the tokens of all children were added up for a group prize, e.g., a group activity. Each session started with discussing homework, followed by exercises, and ending with a new homework assignment, and an evaluation of the session. A handout was given to the child describing the topics “ what was the session about?”, “what did we do?”, “what did we learn?”, and “what are we planning to do with it?”.

### *Waitlist Control Group*

Children who were assigned to the WL control group received no treatment during the waiting period. They waited for the same length of time as the SCIP and SST children were in treatment. After the waiting period the WL control group children were reassessed with the diagnostic checklist and again met inclusion criteria. Thereafter, they were re-randomized to an active treatment condition.

### **Treatment Integrity**

The therapists in both treatment conditions completed a treatment integrity checklist after each session, determining whether all the exercises in the manual had been carried out. Each session was either video - or audiotaped. Approximately 70% of the sessions were examined by the first author. Overall, it was found that 90% of both the SCIP and the SST manuals were followed.

## RESULTS

Table 4.3. Means and Standard Deviations for Outcome Measures ( $N = 97$ )

Measures	Social Cognitive Intervention Program ( $n = 42$ )			Social Skills Training ( $n = 40$ )			Waiting List Control Group ( $n = 15$ )		
		Pre-test	Post-test	FU	Pre-test	Post-test	FU	Pre-test	Post-test
Child Measures									
<b>MFFT</b>									
Errors	M	9.41	7.29	8.26	8.86	8.90	7.73	9.84	8.16
	SD	4.28	4.13	3.64	4.36	4.74	3.36	3.86	4.95
<b>SCST</b>									
	M	35.36	40.93	41.10	36.88	39.92	39.71	37.45	38.36
	SD	7.95	5.79	4.92	6.66	6.18	7.14	6.58	6.31
<b>MESSY</b>									
Total score	M	207.03	217.53	219.05	218.30	220.11	217.00	221.83	214.17
	SD	22.67	18.41	15.85	19.95	18.47	19.68	17.99	14.66
<b>Weekly Report</b>									
Child	M	2.55	1.70		2.25	1.94			
	SD	1.07	0.78		0.92	0.92			
Parent Measures									
<b>Weekly Report</b>									
Parent	M	3.06	2.25		2.71	2.30			
	SD	1.06	0.93		0.98	0.87			
<b>CBCL</b>									
Internalizing	M	61.00	57.64	55.74	63.96	55.88	58.25	62.00	61.14
	SD	9.30	11.07	11.56	8.74	11.13	11.05	7.62	8.59
Externalizing	M	66.78	63.31	58.76	69.73	61.60	59.40	68.29	63.71
	SD	9.54	10.75	10.81	6.55	8.41	10.67	5.88	7.06
Teacher Measures									
<b>TOPS</b>									
Response to Exclusion	M	3.85	3.60	3.29	3.88	3.51	3.53	3.91	3.91
	SD	0.75	0.87	0.66	0.72	0.84	1.04	0.60	0.69
Response to Failure+Success	M	3.04	2.68	2.27	2.81	2.70	2.65	3.07	2.99
	SD	0.94	0.73	0.62	0.81	0.81	0.89	0.56	0.85
Social Expectations	M	2.91	2.59	2.55	2.43	2.32	2.42	2.95	3.02
	SD	0.75	0.80	0.83	0.79	0.86	0.81	0.63	0.67

Teacher Expectations	M	3.63	3.25	3.02	3.36	3.18	2.92	3.40	3.56
	SD	0.63	0.95	0.75	1.04	0.87	1.02	0.84	0.94
<b>SCRS</b>	M	150.57	138.95	135.05	149.66	149.23	139.96	153.75	155.08
	SD	32.59	34.68	36.32	35.02	32.26	38.92	26.39	36.25
<b>TRA</b>									
Reactive Aggression	M	3.59	3.37	2.76	3.26	3.28	3.31	3.18	3.37
	SD	0.73	0.94	0.72	1.03	0.97	1.07	0.77	0.75
Proactive Aggression	M	3.12	2.83	2.44	2.77	2.76	2.50	2.79	2.64
	SD	0.87	1.07	0.93	0.78	0.85	0.83	0.74	0.65
Covert Antisocial	M	2.94	2.67	2.92	2.67	2.55	2.48	2.77	2.69
	SD	0.79	0.96	1.71	0.73	0.79	0.99	0.59	0.59
<b>Weekly Report</b>									
Teacher	M	2.86	2.14		2.40	2.57			
	SD	0.92	0.97		1.10	1.31			
<b>TRF</b>									
Internalizing	M	60.86	57.41	57.17	61.56	62.56	59.56	55.00	59.67
	SD	7.75	7.77	7.33	7.81	11.16	8.89	3.61	1.53
Externalizing	M	71.60	66.35	64.94	71.43	66.76	63.09	69.00	68.00
	SD	6.65	7.05	7.41	10.05	9.21	10.44	9.00	1.00

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FU = follow-up; MFFT = Matching Familiar Figures Test; SCST = Social Cognitive Skills Test; MESSY = Matson Evaluation of Social Skills with Youngsters; TOPS = Taxonomy of Problem Situations; SCRS = Self Control Rating Scale; TRA = Teacher Ratings of Aggression; CBCL = Child Behavior Checklist; TRF = Teacher's Report Form.

### Pretreatment comparisons

There were no statistical significant differences between conditions at pretreatment assessment on background variables, such as age, IQ, comorbidity status, race, socio-economic level and any of the pretest measures.

### Treatment effects

Table 4.3 presents means and standard deviations for child, parent, and teacher outcome measures at pre- and posttest, and 1-year follow-up. Multivariate analysis of variance (MANOVA) for repeated measures were conducted on child, parent, and teacher outcome measures. The measures of MFFT, SCST, and MESSY represented the child dependent variable, the CBCL Externalizing measure represented the parent dependent variable, and the measures of TOPS, SCRS, TRA, and TRF Externalizing represented the teacher dependent variable.

At first we compared children who received treatment (SCIP and SST) with children who received no treatment (WL control group). The results of the repeated measures MANOVA indicated a significant multivariate time effect on parent measure  $F(1,47) = 5.90, p < .01$  and on teacher measures  $F(1,20) = 57.73, p < .000$ . Further, a significant multivariate time x group interaction effect was found on child measures,  $F(1,51) = 7.23, p < .01$ . Univariate analyses on child measures revealed significant time x group interaction effect for SCST,  $F(1,65) = 5.51, p < .05$ , and MESSY,  $F(1,63) = 6.79, p < .01$ . In both cases, a significant improvement occurred in the treated children (SCIP and SST pooled).

It should be noted, that the ratio of smallest to largest cell size for dependent variables was greater than 1 : 1.5, because of the small amount of children who received no treatment ( $n = 15$ ). Further, in the case of the teacher dependent variables the number of subjects in each cell was smaller than the number of dependent variables. Therefore, these results should be interpreted with some caution.

Treatment outcome for children who were randomly assigned to SCIP and SST was analysed using repeated measures analysis of variance (ANOVA) (see Table 4.4) in which time represented the within-subject factor. Because the requirements for MANOVAs were violated, ANOVAs are reported. Significant time effects were found for nearly all the dependent variables (see Table 4.3). Significant time x group interaction effects were found for MFFT,  $F(1,55) = 4.03, p < .05$ , SCST,  $F(1,55) = 4.99, p < .05$ ; MESSY,  $F(1,52) = 4.46, p < .05$ , Child's Weekly Report,  $F(1,64) = 4.04, p < .05$ , Parent's Weekly Report,  $F(1,60) = 5.40, p < .05$ , Teacher's Weekly Report,  $F(1,54) = 10.85, p < .01$ , and SCRS,  $F(1,40) = 3.86, p < .05$ . In each case, a significantly greater improvement from pre- to posttest was found for the children in the SCIP condition.

The results of repeated measures ANOVA for SCIP and SST at 1-year follow-up indicated significant time effects for parent measures, CBCL Externalizing,  $F(1,30) = 20.80, p < .001$ , and teacher measures, TOPS1,  $F(1,30) = 7.29, p < .01$ , TOPS2,  $F(1,30) = 4.43, p < .05$ , TOPS4,  $F(1,30) = 4.75, p < .05$ , TRA Reactive Aggression,  $F(1,20) = 4.40, p < .05$ , TRA Proactive Aggression,  $F(1,20) = 4.40, p < .05$ , and TRF Externalizing,  $F(1,26) = 6.01, p < .05$ . Further, a significant time x group interaction effect was found for SCST,  $F(1,31) = 4.25, p < .05$ , MESSY,  $F(1,34) = 4.50, p < .05$ , TOPS2,  $F(1,30) = 4.24, p < .05$ , and TRA Reactive Aggression,  $F(1,20) = 5.39, p < .05$ . A significantly greater improvement was found for the children treated with the SCIP.

Table 4.4.

Repeated measures ANOVA (*F* values) at Post-test and 1 -Year Follow-Up  
for Social Cognitive Intervention Program versus Social Skills Training (*N* = 70)

Measures	Pretest - Posttest		Pretest - 1-Year Follow-Up	
	Time	Time x Group	Time	Time x Group
<b>ANOVA</b>				
	Child Measures			
<b>MFFT</b>	<i>df</i> = 1, 55		<i>df</i> = 1, 32	
Errors	3.78*	4.03*	< 1	< 1
<b>SCST</b>	<i>df</i> = 1, 55		<i>df</i> = 1, 31	
	57.72***	4.99*	1.67	4.25*
<b>MESSY</b>	<i>df</i> = 1, 52		<i>df</i> = 1, 34	
Total score	8.94**	4.46*	1.93	4.50*
<b>Weekly Report</b>	<i>df</i> = 1, 64			
Child	18.39***	4.04 *	-	-
	Parent Measures			
<b>Weekly Report</b>	<i>df</i> = 1, 60			
Parent	51.42***	5.40*	-	-
<b>CBCL</b>	<i>df</i> = 1, 40		<i>df</i> = 1, 30	
Externalizing	15.22***	2.45	20.80***	< 1
	Teacher Measures			
<b>Weekly Report</b>	<i>df</i> = 1, 54			
Teacher	4.00*	10.85**	-	-
<b>TOPS</b>	<i>df</i> = 1, 46		<i>df</i> = 1, 30	
Response to exclusion	7.80**	< 1	7.29**	1.20
Response-failure+success	5.15*	1.41	4.43*	4.24*
Social expectations 2.80	< 1		1.36	< 1
Teacher expectations	7.77**	1.09	4.75*	< 1
<b>SCRS</b>	<i>df</i> = 1, 40		<i>df</i> = 1, 31	
	4.48*	3.86*	2.26	< 1
<b>TRA</b>	<i>df</i> = 1,33		<i>df</i> = 1, 20	
Reactive aggression	1.11	1.84	4.40*	5.39*
Proactive aggression	3.11	2.85	4.40*	2.63
Covert antisocial	4.28*	< 1	< 1	< 1
<b>TRF</b>	<i>df</i> = 1, 39		<i>df</i> = 1, 26	
Externalizing	15.61***	< 1	6.01*	< 1

\* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001. *df* = degrees of freedom.

MFFT = Matching Familiar Figures Test; SCST = Social Cognitive Skills Test; MESSY = Matson Evaluation of Social Skills with Youngsters; TOPS = Taxonomy of Problem Situations; SCRS = Self Control Rating Scale; TRA = Teacher Ratings of Aggression; CBCL = Child Behavior Checklist; TRF = Teacher's Report Form.



In summary, the changes over time at posttest and 1-year follow-up reflect a decrease in aggressive behavior and impulsivity, and an increase in appropriate social behavior, self-control and social cognitive skills. These changes showed group differences in favor of the SCIP children.

### **Clinical Significance**

To examine clinical significance at an individual level, we used the scores on the Weekly Report measure. The five target behaviors in the Weekly Report measure are disruptive behavior problems that correspond to the DSM-IV symptoms for CD, ODD, and DBD-NOS. The mean score of the five targeted behaviors for each aggressive child had to be  $< 2.5$ , to no longer meet the DSM-IV criteria for CD, ODD, and DBD-NOS. At posttest, on the Teacher version of the Weekly Report 64.9% (24 of 37) of the SCIP group and 45.2% (14 of 31) of the SST group no longer were reported to show these particular behavior problems. On the Parent version of the Weekly Report 61.5% (24 of 39) of the SCIP group and 50% (16 of 32) of the SST group no longer showed these particular behavior problems. Combining Teacher and Parent Weekly Report measures, the percentages were 63.2% for the SCIP children and 47.6% for the SST children. One-year follow-up data on this measure were not available, because no Weekly Reports were collected after the posttest.

### **Effect Sizes**

Effect sizes were calculated for all child, parent and teacher measures at posttest and 1-year follow-up. Effect sizes were calculated for SCIP and SST at posttest for 16 measures and at 1-year follow-up for 13 measures. The mean effect sizes of SCIP (0.50 at posttest and 0.76 at 1-year follow-up) were larger than the mean effect sizes of SST (0.41 at posttest and 0.56 at 1-year follow-up).

## **DISCUSSION**

The results of the current study support the efficacy of both the SCIP and the SST. Although children in both treatment conditions improved, children in the SCIP condition showed improvement on more outcome measures at

posttest and follow-up. Overall, the mean effect sizes were larger than the mean effect sizes reported in recent meta-analyses. The results of this study support the expectation that focusing on deficits and distortions in social cognitive processes (SCIP) instead of merely focusing on social skills (SST) would enhance treatment efficacy because a significantly greater improvement was found for the children treated with the SCIP. This implies, that a short-term social-cognitive therapy, such as the SCIP, may positively affect the behavior of aggressive boys.

Our findings contrast with the results of recent meta-analyses and reviews. The mean effect sizes of the SST in our study (0.41 at posttest and 0.56 at 1-year follow-up) were larger than the mean effect size of 0.13 by Quinn et al. (1999). According to Cohen (1988), effect sizes become "potentially significant" around 0.40. This implies that SST may significantly reduce the disruptive behavior of aggressive children. This also applies for the SCIP. The mean effect sizes for the SCIP (0.50 at posttest and 0.76 at 1-year follow-up) are medium to large. The SCIP showed a positive effect on all dependent variables. There was an increase in appropriate social behavior (MESSY, CBCL, and TRF), social cognitive skills (SCST and TOPS), self-control (MFFT, SCRS, and Weekly Report) and a decrease in aggressive behavior (TRA, TOPS, CBCL, and TRF). The effect size for the SCIP was found to be larger at follow-up than at posttest. This is an interesting finding. Perhaps in the SST, behavioral changes were mainly achieved through the therapist's use of extrinsic reinforcement (token economy), where as in the SCIP, the child behaviors gradually became reinforced intrinsically (e.g., through self-control techniques), which may have resulted in higher 1-year follow-up scores. Future treatment outcome research should examine this possibility.

On a few dependent measures the SCIP yielded treatment specific effects. One of these measures, the Social Cognitive Skills Test, is a highly relevant one with regard to the theoretical basis of the SCIP. The results indicated significantly greater changes from pre- to posttest on the SCST in the SCIP condition. This implies that social cognitive skills can be positively affected by the social cognitive intervention program, and suggests the potential usefulness of the SCIP as a component in a modular treatment package.

### **Limitations**

There are a number of limitations to consider: (1) For ethical reasons the WL control group was rather small, so a powerful comparison with the other two treatment groups was not possible. (2) In a number of cases, data were

missing at posttest and especially at 1-year follow-up due to parents' and teachers' not filling out the rating scales, even after repeated requests; Weekly Report measures were not available for follow-up analysis. Therefore, there was no weekly contact with the respondents, and less response at 1-year follow-up. (3) Although the aggressive behavior of the boys who were included in the study was dominant over other problem behavior, the information on possible comorbidity with other problem behaviors, such as anxiety, depression, and ADHD was not fully explored. Given the high comorbidity of ODD/CD with ADHD, a major limitation of the current study is the lack of information on any differences in effectiveness in aggressive boys with or without ADHD characteristics.

### **Clinical implications**

Although there were numerous parent and teacher contacts at the intake, during therapy and in the evaluation phase, the SCIP essentially is a child-focused intervention. It has been assumed that the changes in child functioning and generalization to the child's social environment will be larger and will last longer if the parents also receive therapy. Kazdin et al. (1992), for example, found that aggressive children who received a problem solving skills training, and whose parents were involved in a parent management training showed greater decreases in aggressive behavior than children assigned to a problem solving skills training only. We suggest that future research evaluate the combined effects of the SCIP with a parent management training.

The Weekly Report in the current study may be considered the clinically most relevant measure, but also may have functioned as an additional treatment component. Completing the Weekly Report appeared to follow the steps of the self-control process. Each week, the aggressive boys had to consider their behavior on the five items of the Weekly Report (self-observation), had to evaluate their behaviors (self-evaluation), and depending on the result, had to reinforce themselves (self-reinforcement). However, future studies should test these assumptions. The effect sizes of the Weekly Report for Child, Parent and Teacher were medium to large for the SCIP children (0.76, 0.86, 0.53, respectively) and (very) small to medium for the SST children (0.37, 0.47, 0.12, respectively). Therefore, the Weekly Report used in the SCIP can be considered a clinically valid outcome measure.

Future research may focus on enhancing the therapeutic power of the SCIP in clinical practice. This can be achieved in different ways by (a) developing reliable and valid measures for all stages of Dodge's social

information processing model, (b) further differentiating the emotions, cognitions and behaviors specific to aggressive children, and integrating this knowledge into the social cognitive intervention program, and finally (c) improving treatment integrity of the social cognitive intervention program by giving video feedback to the therapists after each session.

Given the multicausal and multifaceted nature of the problems of aggressive children, it is promising to find that the SCIP contributes to promoting adequate social behaviors in aggressive boys.



## Chapter 5

# **Social Cognition and Self-Control as Mechanisms of Change in Cognitive Behavior Therapy with Aggressive Boys<sup>1</sup>**

### **Abstract**

The objective of the present study was to examine whether the improvement of social cognitive skills and of self-control would result in a reduction of aggressive behavior. Seventy aggressive boys (aged 9 – 13 years) were randomly assigned to an 11 session social-cognitive group treatment ( $n = 38$ ) based on Dodge's social information processing theory, and a social skills training ( $n = 32$ ). Measures of social cognitive skills, self-control, and aggressive behavior were completed at pre-treatment, post-treatment and 1-year follow-up. The results at post-treatment demonstrated a small to moderate relationship between (a) an increase in social cognitive skills (social cognitive change) and a reduction in children's aggressive behavior (behavioral change), and between (b) an increase in self-control and behavioral change. At 1-year follow-up a small relationship was found. The evaluation of the change process indicated a potential mediation effect for social cognition (33%) and self-control (21%) in cognitive behavior therapy of aggressive boys. After statistical evaluation with the Sobel test significant mediation remained in two cases (8.3%) with self-control as mediator. The mediating role of social cognition and self-control appeared

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<sup>1</sup> Submitted for publication

to be greater in the social cognitive intervention program than in the social skills training. Implications for research on social information processing theory and cognitive behavior therapy are discussed.

## **Introduction**

Since aggressive children may attend to fewer relevant social cues before interpreting an event, perceive ambiguous social situations in a hostile manner, generate fewer solutions to social problems, generate more aggressive and fewer assertive solutions, and evaluate aggressive responses as being more effective than non aggressive responses (Crick and Dodge, 1994; Bennett and Gibbons, 2001; Dodge et al., 2003) child-focused Cognitive Behavior Therapy (CBT) for antisocial behavior often targets these socio-cognitive deficits and biases. Child-focused CBT has been increasingly used to try to decrease children's antisocial behavior, but the major factors responsible for positive effects have not yet been identified. For example, in a meta-analysis of CBT interventions for children Durlak et al. (1991) failed to find a significant relationship between changes in cognitive processes and clinical outcomes. Durlak et al. (2001) surmise, that this may probably be due to the lack of relevant assessments rather than to the inadequacy of the CBT approach.

The point of departure in this paper will be the search for treatment ingredients, which are responsible for modifying children's aggressive behavior in child-focused CBT. A variety of possible cognitive mediators may determine whether a child behaves aggressively. The goal of cognitive behavioral treatment is to teach children to use social cognitive skills to guide their behavior away from aggressive options and toward non-aggressive responses (Hudley, 2003). Therefore, our focus in this research will be on social cognitive skills as representatives of cognitive mediators in child focused CBT.

In a recent review of the role of developmental psychology in CBT, Grave and Blissett (2004) concluded, that there is strong evidence that age and, by implication, cognitive developmental level plays a central mediating

role in the efficacy of CBT. However, there is little support for cognitive changes being the mechanism for behavioral change in the evidence presented so far. Although, parent management training programs for conduct-disordered children have been found to receive the strongest empirical support (Brestan and Eyberg, 1998), intervention programs that manage to integrate the development of effective cognitive skills within the child's total developmental ecology may prove to be the most effective in the long run (Durlak et al., 2001).

Van Manen (2001) developed the social-cognitive intervention program 'Self-control' for treating children with conduct disorder (CD) and oppositional defiant disorder (ODD) aged between 8 and 13 years. This intervention program is based on Crick and Dodge's (1994) social-cognition model, and tries to tackle the deficits and distortions in social information processing that are typical of children with disruptive behavior problems. The objectives of the social-cognitive intervention program are (1) to reduce children's aggressive behavior in social problem situations, (2) to improve children's social cognitive skills, (3) to increase children's level of self-control, and (4) to reduce children's impulsiveness. More specifically, children learn to solve various social problem situations by decoding verbal and nonverbal cues, interpreting external and internal cues, clarification of goals and response search, discriminating and labeling emotions in oneself and others, deciding for a response after evaluating consequences, and enactment of the best solution. Other ingredients include training in social cognitive skills, self-control, using self-instruction, analyzing a provoking situation by anger control, stand up for oneself using self-control, and coping with provocation. So far, three studies have reported positive treatment effects of the 'Self-control' program in children with disruptive behavior disorders. In a pilot study, Van Manen et al. (1999) treated eleven clinically referred children with ODD or CD with this social-cognitive intervention program, and found significant pre- to post-treatment reductions of externalizing behavior (i.e., aggression and delinquency) and social problems. In a second study (Van Manen et al., 2004), ninety-seven children with disruptive behavior disorders were randomly assigned to one



of three conditions, i.e., the social-cognitive intervention ‘Self-control’, a social skills training, and a waitlist control group. Results showed that both the ‘Self-control’ intervention and the social skills training yielded significant reductions in aggressive and impulsive behavior and improvement of social cognitive skills and social behavior whereas the waitlist control group condition did not. Further, there were significant differences between the ‘Self-control’ intervention and the social skills training on various child, parent, and teacher measures. At 1-year follow-up the mean effect sizes were medium to large, in favor of the Social Cognitive Intervention Program (SCIP) children. The expectation that focusing on the deficits and distortions in social cognitive processes (‘Self-control’ intervention) instead of merely focusing on social skills would enhance the effectiveness was supported on child, parent, and teacher measures. However, a direct test of the mediating role of improved social cognitive processes has not been conducted.

Altogether, the social-cognitive program ‘Self-control’ is a theory-based intervention that has yielded positive effects in clinically referred children with disruptive behavior disorders. Muris et al. (2005) confirmed the results of the two clinical studies by examining the “Self-control” intervention for forty-two children with oppositional and aggressive behaviors in the classroom. Results demonstrated that the social-cognitive intervention “Self-control” yielded a significant reduction of behavior problems and an increase of social cognitive skills as compared to the waitlist control group condition. Further, a follow-up assessment of the children who were initially treated indicated that the intervention effects were retained over a 3-months period. Finally, some support was found for the theoretical underpinnings of the social-cognitive intervention program. More specifically, a greater increase in social cognitive skills was to some extent associated with a larger reduction of behavior problems.

The objective of the present study was to examine whether after treatment the improvement of social cognitive skills and self-control would result in a reduction of aggressive behavior, and specifically reactive and proactive aggressive behavior. This study examined the relationship

between, (a) an increase in social cognitive skills (social cognitive change) and a reduction in children's aggressive behavior (behavioral change), and (b) an increase in self-control and behavioral change. It was hypothesized that social cognition and self-control would mediate treatment outcome in aggressive behavior, and that the mediating role of social cognition and self-control would be greater in the social cognitive intervention program than in the social skills training.

## **METHOD**

### **Participants**

The participants were 70 aggressive boys, aged 9 to 13 years ( $M = 11.26$ ,  $SD = 0.85$ ). Ethnic composition sample was 78.6 % White, 10 % Moroccan, 7.1 % Turkish, and 4.3 % Surinamese-Caribbean. The socio-economic level was lower to middle class based on the highest level of education of the parents and on their profession/occupation.

The boys were referred for treatment to outpatient mental health clinics in various cities in the Netherlands. They were admitted to the program if they met the DSM-IV criteria (American Psychiatric Association, 1994) for CD, ODD or disruptive behavior disorder - not otherwise specified (DBD-NOS). To be included in this study, the boys had to have a total WISC-R IQ score above 85, based on the full scale IQ (Wechsler Intelligence Scale for Children Revised Dutch version) (Vandersteene et al., 1986; Wechsler, 1974), and no learning disorder. Further, boys were included if their aggressive behavior and/or delinquent behavior scores on the Child Behavior Checklist (CBCL) (Achenbach, 1991) or Teacher's Report Form (TRF) were dominant over the attention problems scores, i.e., scores on the problem-scales aggressive behavior and/or delinquent behavior should be in the clinical range, and the score on the problem-scale attention problems in the nonclinical range. ODD/CD boys with a few attention-deficit/hyperactivity disorder (ADHD) characteristics according to the DSM-IV criteria, but without a ADHD diagnosis, were not excluded.

## Measures

To assess the aggression problems of the children, parents completed the CBCL (Achenbach, 1991). The CBCL is a 118-item scale that provides scores on eight problem-scales and identifies internalizing and externalizing problems. A parallel form of the CBCL, the TRF was also used. Dutch normative data for both CBCL and TRF are available (Verhulst et al., 1996).

Weekly Reports on five target behaviors were tailored for each child, separately. Before treatment, parents chose five problem behaviors from a variety of problems that had been grouped by the therapist, based on the intake interview. Each child had to agree with the selected problem behaviors and that they should be changed. If not, other problem behaviors of that particular child were selected. The same target behaviors were used across all informants for a given child. For each target behavior, a 5-point scale was used, ranging from 1 (never) to 5 (always). Examples of target behavior problems are: blames others, gets mad for no good reason, steals money, changes rules to win, and won't admit his fault. The Weekly Report total score consists of the mean score of the five target behaviors. The parents and the child's teacher were phoned each week at a fixed time by one of the therapists to complete the weekly report. The first telephone call was a week before the start of the treatment and the last call was made in the week of the last treatment session. The children filled out Weekly Reports at the start of every treatment session. They received no contingencies based on the Weekly Report.

In the current study, Weekly report measures may be considered self-control measures, because each week the aggressive boys (a) had to observe (monitoring) their behavior according to the five problem behavior items of the Weekly Report (self-observation), (b) had to evaluate their behaviors (self-evaluation), and (c) had to reinforce themselves (self-reinforcement). Self-control may be defined in the same way as effortful control, i.e., the ability to inhibit a dominant response in order to perform a subdominant response.

The Teacher Rating Scale for Reactive and Proactive Aggression (TRA) (Brown et al., 1996) contains 21 antisocial items covering the two factors proactive aggression and reactive aggression, and a covert antisocial factor. The internal consistency and discriminant validity are good.

Matson Evaluation of Social Skills with Youngsters (MESSY) (Matson et al., 1983) is a self-report questionnaire, that consists of 62 questions that provides scores for positive social behaviors, negative social behaviors and total overall social skill. Factorial studies with Dutch samples found two factors: appropriate social skills and inappropriate social skills (aggressive/antisocial behavior). The Dutch version of the scale has a good internal consistency, test-retest reliability and construct validity (Blonk et al., 1993).

The Self Control Rating Scale (SCRS) (Kendall and Wilcox, 1979) completed by teachers, is a 33-item designed to assess the behavioral (response inhibition) and cognitive (problem-solving) components of self-control. The reliability and validity of the SCRS with teachers as raters are high (Van de Winkel, 1986).

The Social Cognitive Skills Test (SCST) (Van Manen et al., 2001) assesses social cognitive skills and consists of six short stories with corresponding pictures. The SCST is based on the assumption that social cognitive development takes place following a sequence of eight social cognitive skills, which are hierarchical in such a way that cumulative learning can occur. Each story of the SCST measures eight social cognitive skills by systematically questioning the child. Research has shown that the SCST discriminates between aggressive and non-aggressive children (Van Manen et al., 2001).

### **Treatments**

A group treatment format ( $n = 4$ ) was chosen so that children could practice in a safe environment, interacting with children of the same age. Small groups provide opportunities for role-playing and peer feedback. Moreover, in a group, children are more often exposed to situations (cue-

exposure) in which they need to control their impulses (self-control). This offers them opportunities to exercise solving social problems in daily life situations (generalisation) such as making friends, joining a group, controlling anger, and helping other children in an appropriate way. The “Self-control” program and Social Skills Training (SST) both consisted of 11 weekly sessions of 70 minutes each.

#### *The “Self-control” Program*

A detailed treatment manual describing the theoretical framework, goals, exercises, and with a session-by-session description is available in Van Manen (2001). The “Self-control” program is a cognitive-behavioral treatment and consists of four major components (a) social information processing, (b) problem solving abilities, (c) social cognitive skills, and (d) self-control skills. The treatment sessions followed the sequence of six steps in Dodge’s model. The problem-solving skills and the social cognitive skills were integrated into the sequence of these six steps. For the behavioral enactment and evaluation steps of the model, three self-control components, i.e., self-observation, self-evaluation, and self-reinforcement, were then integrated.

Each session started with discussing any problems or issues from the previous week related to home-work, followed by exercises, and ending with an evaluation of the session and a hand-out describing “what did we do” and “what can I do with it”. Also weekly homework tasks were set at the end of each session in which children were asked to practice their newly acquired skills outside the group environment.

The therapists used prompts, cognitive modeling (verbalizing the problem solving steps), role-play positive reinforcement , time-out procedure, and coaching using video feedback.

#### *The Social Skills Training*

The SST is a behavioral training focused on teaching children various social skills to improve interaction with peers and increase acceptance. The SST used various behavioral techniques, such as modeling, role-play,

prompts, and reinforcement. Each treatment session was focused on teaching a particular social skill such as greeting and listening skills, conversation skills with attending to verbal and nonverbal cues, recognizing and verbalizing feelings, joining in and reacting to rejection, negotiating, and reacting to being teased and criticized. Response cost was also used by the therapists. At the beginning of each session, all children were given tokens. They could earn and lose tokens depending on their behavior in the session. At the end of each session, children could exchange tokens for small prizes. Moreover, the tokens of all children were added up for a group prize, e.g., a group activity. Each session started with discussing homework, followed by exercises, and ending with a new homework assignment, and an evaluation of the session. A hand-out was given to the child describing the topics “ what was the session about?”, “what did we do?”, “what did we learn?”, and “what are we planning to do with it?”.

See: Van Manen et al., 2004.

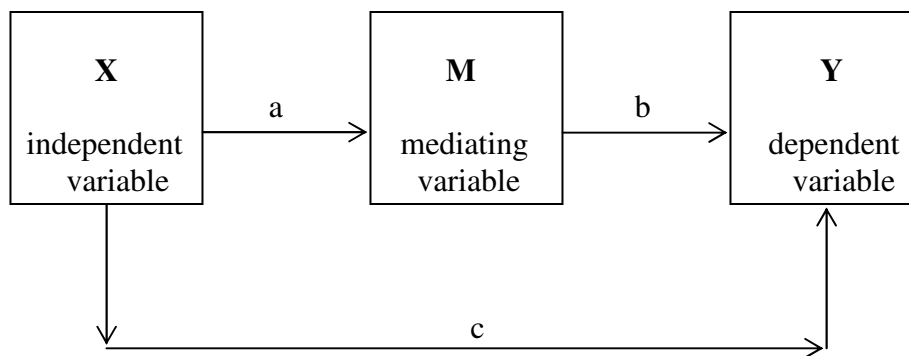


Fig. 5.1 Pathmodel with mediating variable M, i.e. social cognition and self-control change scores, independent variable X, i.e. treatment, and dependent variable Y, i.e. aggressive behavior change scores

### *Data analysis*

The hypothesized mediation effect is that treatment, i.e., social cognitive intervention program “Self-Control” and social skills training,

leads to improvement of social cognitive skills and self-control and that subsequently better social cognitive skills and more self-control leads to less aggressive behavior. This implicates that the correlations among the independent, dependent and mediating variables must be statistically significant (Baron and Kenny, 1986). Mediation can be considered present if (a) treatment (independent variable) significantly affects the mediating variable, (b) the mediating variable significantly affects the dependent variable, (c) treatment significantly affects the dependent variable, and (d) the impact of treatment on dependent variable is less after controlling for mediating variable. To test for mediation, we computed four regression equations for each dependent variable (Baron and Kenny, 1986). Path A, mediating variable regressed on independent variable. Path B, dependent variable regressed on the mediating variable. Path C, dependent variable regressed on independent variable and Path D dependent variable regressed on independent variable controlling for mediating variable (see fig. 5.1). Statistical evaluation of mediation effects took place by using a Sobel test, which determines to what extent the mediating variable carries the influence of the independent variable (treatment) to the outcome variable (Sobel, 1988).

## **Results**

The treatment outcomes of the randomized controlled trial with the Social Cognitive Intervention Program “Self-control” and the Social Skills Training, were reported previously (Van Manen et al., 2004). In that study, significant time effects were found for nearly all the dependent variables from pre- to post-treatment and from pre-treatment to 1-year follow-up. The results also indicated significant interaction effects for SCST, MESSY, Child Weekly Report, Parent Weekly Report, Teacher Weekly Report, and SCRS. More specifically, we found on these variables a significantly greater improvement from pre- to post-treatment for the children in the SCIP condition. We may conclude that group-treatment predicts changes in

mediating variables social cognition and self-control and in dependent variables aggressive behavior.

Table 5.1.

Summary of Path Coefficients from Multiple Regression Analyses for Testing Social Cognition (SCST-scores) as a Mediator of Treatment Change in Aggressive Behavior

Dependent variable	pre- to post-treatment				pre-treatment to 1-year follow-up			
	Path A	Path B	Path C	Path D	Path A	Path B	Path C	Path D
<b>Aggressive Behavior</b>								
CBCL <sub>ext</sub>	-.32**	.02	-.30**	-.33**	-.35*	-.06	-.04	-.23
TRF <sub>ext</sub>	-.32**	-.27*	.05	-.04	-.35*	.14	-.11	-.12
TRA <sub>1</sub> reactive aggression	-.32**	-.15	.32**	.30**	-.35*	-.21*	.46*	.48*
TRA <sub>2</sub> proactive aggression	-.32**	-.27*	.38***	.33**	-.35*	-.21*	.33	.36
TRA <sub>3</sub> covert antisocial	-.32**	-.10	.19	.17	-.35*	.24*	-.26*	-.19
MESSY	-.32**	.25*	-.27*	-.21	-.35*	.31**	-.44**	-.38**

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

SCST = Social Cognitive Skills Test; CBCL<sub>ext</sub> = Child Behavior Checklist - externalizing; TRF<sub>ext</sub> = Teacher's Report Form - externalizing; TRA = Teacher Rating scale for Reactive and Proactive Aggression; MESSY = Matson Evaluation of Social Skills with Youngsters.

### *Social cognitive skills as mediators of treatment outcome*

Social cognition as a mediator of treatment outcome was examined by regression analysis. Treatment status was dummy coded (SCIP = 1, SST = 0) as an independent variable (X). SCST change score served as the mediating variable (M), and aggressive behavior, as measured by a change score of CBCL externalizing, TRF externalizing, TRA (reactive aggression, proactive aggression, and covert antisocial), and MESSY served as the dependent variable (Y).

Social cognition as assessed with the SCST played a mediating role in decreasing aggressive behavior on TRA proactive aggression and MESSY



(see Table 5.1). Inspection of the results suggests that the mean change scores were greater in the SCIP condition than in the SST condition.

SCST did not significantly predict CBCL externalizing, TRA (reactive aggression and covert antisocial) pre- to post-treatment (path B, regression Y on M), and therefore the mediation hypothesis was not supported for these measures. Treatment did not significantly affect TRF externalizing pre- to post-treatment (path C), and therefore the mediation hypothesis was not supported. For mediation of social cognition with pre-treatment to 1-year follow-up scores evidence was found for SCST on TRA covert antisocial and MESSY. Although for several dependent variables significant standardized regression coefficients in Path C were reduced in Path D, suggesting a mediation effect of social cognition, these reductions were not significant (Sobel test). Therefore, no significant mediation through social cognition had occurred.

Table 5.2.

Summary of Path Coefficients from Multiple Regression Analyses for Testing Self-Control as a Mediator of Treatment Change in Aggressive Behavior

Dependent variable	Child Weekly Report				Parent Weekly Report			
	Path A	Path B	Path C	Path D	Path A	Path B	Path C	Path D
Aggressive Behavior								
CBCL <sub>ext</sub>	.25*	.14	-.30*	-.36**	.30**	-.09	-.30*	-.31*
TRF <sub>ext</sub>	.25*	-.08	.05	.07	.30**	.08	.05	.03
TRA <sub>1</sub> reactive aggression	.25*	.07	.32**	.32**	.30**	.18	.32**	.29*
TRA <sub>2</sub> proactive aggression	.25*	.07	.38***	.39***	.30**	.07	.38***	.40**
TRA <sub>3</sub> covert antisocial	.25*	.04	.19	.19	.30**	.24*	.19	.12
MESSY	.25*	-.39***	-.27*	-.18	.30**	-.13	-.27*	-.25*

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

CBCL<sub>ext</sub> = Child Behavior Checklist - externalizing; TRF<sub>ext</sub> = Teacher's Report Form - externalizing; TRA = Teacher Rating scale for Reactive and Proactive Aggression; MESSY = Matson Evaluation of Social Skills with Youngsters.

Table 5.3.

Summary of Path Coefficients from Multiple Regression Analyses for Testing Self-Control as a Mediator of Treatment Change in Aggressive Behavior

Dependent variable	Teacher Weekly Report				Self Control Rating Scale			
	Path A	Path B	Path C	Path D	Path A	Path B	Path C	Path D
<i>Aggressive Behavior</i>								
CBCL <sub>ext</sub>	.45***	-.03	-.30*	-.37**	.37**	-.004	-.30**	-.35**
TRF <sub>ext</sub>	.45***	.20	.05	-.05	.37**	.52***	.05	-.17
TRA <sub>1</sub> reactive aggression	.45***	.09	.32**	.35**	.37**	.42***	.32**	.19
TRA <sub>2</sub> proactive aggression	.45***	.33**	.38***	.29*	.37**	.45***	.38***	.25*
TRA <sub>3</sub> covert antisocial	.45***	.17	.19	.14	.37**	.38***	.19	.05
MESSY	.45***	-.24*	-.27*	-.20	.37**	-.04	-.27*	-.29*

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

CBCL<sub>ext</sub> = Child Behavior Checklist - externalizing; TRF<sub>ext</sub> = Teacher's Report Form - externalizing; TRA = Teacher Rating scale for Reactive and Proactive Aggression; MESSY = Matson Evaluation of Social Skills with Youngsters.

#### *Self-Control as mediator of treatment outcome*

Self-control as a mediator of treatment outcome was examined by mediation analysis. Treatment status was dummy coded (SCIP = 1, SST = 0) as an independent variable. Self-control change score (Child, Parent, Teacher Weekly Report and SCRS) served as the mediating variable, and aggressive behavior, as measured by a change score of CBCL externalizing, TRF externalizing, TRA (reactive aggression, proactive aggression, and covert antisocial), and MESSY served as the dependent variable.

Tables 5.2 and 5.3 showed the results of the mediation analysis. Self-control played a mediating role in decreasing aggressive behavior with Child Weekly Report on MESSY; Teacher Weekly Report on TRA proactive aggression, and MESSY; and SCRS on TRA reactive aggression,

and TRA proactive aggression. Inspection of all results suggests that the mean change scores were greater in the SCIP condition than in the SST condition. Therefore, we may say that SCIP reduces aggressive behavior more than SST.

Sobel tests confirmed the significant mediating role of self-control (SCRS) in the relation between group-treatment and aggressive behavior, i.e., TRA reactive aggression, Sobel  $z$ -value = 2.22,  $p < .05$ , full mediation, 71% is the percentage of the total effect that is mediated; TRA proactive aggression, Sobel  $z$ -value = 2.22,  $p < .05$ , partial mediation, 34.9% is the percentage of the total effect that is mediated.

Child Weekly Report did not significantly predict CBCL externalizing, TRF externalizing, TRA (reactive aggression, proactive aggression and covert antisocial) pre- to post-treatment (path B, regression Y on M), and therefore the mediation hypothesis was not supported. Parent Weekly Report did not play a mediating role in decreasing aggressive behavior. The mediation hypothesis was not supported for 4 out of 6 Teacher Weekly Report outcome measures (Path B). SCRS was not significantly associated with aggressive behavior for CBCL externalizing and MESSY (Path B), and hence did not mediate treatment outcome. Treatment did not significantly affect TRF externalizing and TRA covert antisocial ( $\beta = .19$ ,  $p < .10$ ) pre- to post-treatment (path C), and therefore the mediation hypothesis was not supported.

## **Discussion**

The objective of the current study was to test the assumption whether treatment, i.e., social cognitive intervention program “Self-Control” and social skills training, leads to improvement of social cognitive skills and self-control and that subsequently better social cognitive skills and more self-control leads to a reduction of children’s aggressive behavior. All four of Baron and Kenny’s (1986) conditions for mediation were met for 2 out of 6 mediation analyses (33%) with social cognition as a mediator of treatment change (pre- to post-treatment and 1-year follow-up) in aggressive behavior,

and for 5 out of 24 mediation analyses (21%) with self-control as a mediator of treatment change in aggressive behavior. However, after statistical evaluation of the mediation effects, significant mediation (Sobel, 1988) occurred in two cases (8.3%) only. This means, that some support was found for the theoretical underpinnings of the social-cognitive intervention program.

The results are, on the one hand, promising for the social-cognitive intervention program “Self-control” based on Dodge’s social information processing theory, and on the other hand, limited. They should be interpreted with caution. A significant relationship between social cognition and behavioral change in aggressive boys was found for 50% of the outcome measures in the SCIP (social cognitive intervention program) condition and 16.7% was found in the SST (social skills training) condition. A significant relationship between self-control and behavioral change in aggressive boys was found for 46% of the outcome measures in the SCIP condition and 4% of the outcome measure in the SST condition. Overall, the mediating role of social cognition and self-control was greater in the SCIP condition than in the SST condition.

Many studies have provided evidence that aggressive children show cognitive deficits and distortions in social information processing, and that CBT with aggressive children is efficacious. However, no evidence was found for a mediating effect of social cognition on aggressive behavior (Weersing and Weisz, 2002; Nock, 2003). In the current study some support was found for the prediction that the improvement of social cognitive skills would result in a reduction of children’s aggressive behavior. Results of mediation analysis indicated that aggressive behavior is likely to be affected by both mediators, social cognition and self-control. Presumably, the treatment of aggressive children may lead to appropriate social behavior through multiple mediating paths.

Various explanations may account for the small support in this study for the mediating role of social cognition and self-control in CBT. First, the underlying social cognitive processes are difficult to isolate because of numerous feedback loops at each of the six stages of social information

processing and many parallel processes of social stimuli which are running at the same time (Crick and Dodge, 1994). Second, it might be that the Social Cognitive Skills Test (SCST) is less suited for assessing the typical deficits and distortions of aggressive children in response to social problem situations (Muris et al., 2005). This is joining Durlak's et al. (2001) idea, that failing to find a substantial relationship between changes in cognitive processes and clinical outcomes is due to the lack of relevant assessments rather than to the inadequacy of the cognitive behavioral approach. Third, the social cognitive intervention program "Self-Control" is a multi-component intervention that targets multiple change processes, e.g., social cognitive deficits and distortions, problem solving skills, self-control techniques, self-regulation skills, and the process of change is not due to one dominant factor.

The results of the current study suggest a stronger mediating role of social cognition and self-control on proactive aggression than on reactive aggression. This finding confirms the Vitiello and Stoff's notion (1997) that children with controlled-proactive-instrumentally aggression are more likely to respond to cognitive behavioral therapy. They are sensitive to environmental reinforcers and able to adjust their conduct accordingly. Some support was found in our study for Vitiello and Stoff's notion, that children with impulsive-reactive-hostile aggression can be considered to be less capable of self-control and to be driven to aggression by poor frustration, negative affects such as anger and fear, and a cognitive distortion of the environmental circumstances.

Implications for future research may include, first, more focus on developing assessment instruments for social cognitive processes. Second, broadening the research agenda more on the "how" besides searching for the ("what") working mechanisms in social cognitive change. A promising pathway in future research, for example, is the link between aggressive behavior and temperament, in particular effortful control as a temperamental dimension. High emotionality combined with poor regulation skills predict poorer social functioning and problem behaviors, whereas children with high emotionality and good regulation skills are not at risk for behavior

problems (Eisenberg et al., 1997). Aggressive children have high emotionality and low effortful control. Children high in effortful control may be able to direct attention away from the rewarding aspects of negative affectivity by shifting attention away from the negative cues related to anger (Posner and Rothbart, 2000). These findings emphasize the need to pay special attention in the social cognitive intervention program to self-control techniques and regulation skills. And, third, more attention may be paid to the moment of intervention. Age-appropriate preventive interventions that can support children in developing social competence and successfully managing peer interactions across childhood will have the best chance of interrupting a developmental progression from childhood cognitive bias to adolescent antisocial behavior (Hudley, 2003).

At last, although it is clear, that social cognition is considered as a very important and even critical condition for qualitative changes in social behavior, we have to conclude that raising the level of social cognition does not guarantee concomitant change in boys' aggressive behavior.



## Chapter 6

# Conclusions and Implications for Future Research

Aggressive behavior represents a very broad domain involving child, parent, family and contextual conditions. The understanding of causal processes involved in the emergence and maintenance of aggressive behavior is a complicated issue. Antisocial and aggressive behavior is embedded in a broader context of negative parent - and family factors, such as lack of affection between parents and child, lack of supervision and control by the parents, social isolation, permissiveness for aggression, high punitiveness, unemployment, debts, psychiatric impairment in (one of) the parents, marital stress, no school-contact, dangerous neighborhood, and poor intrafamilial problem-solving strategies.

The question is, where to go from here? One avenue toward reducing aggressive behavior is to develop effective child-centered interventions and valid diagnostic instruments. The focus of this thesis concerns the assessment of social cognition and the evaluation of a Social Cognitive Intervention Program (SCIP) for aggressive children. This social-cognitive group therapy is based on Dodge's social information processing theory (Crick and Dodge, 1994; Dodge, 1986), and integrates problem solving abilities, social cognitive skills and self-control techniques. The central objective of the treatment-outcome study was to examine the effectiveness of the Social Cognitive Intervention Program for aggressive boys and to compare it with a Social Skills Training and a Waitlist control group, examining the question whether focusing on deficits and distortions in



social cognitive processes instead of merely focusing on social skills would enhance treatment outcome.

In the following paragraphs, attention will be paid to theoretical issues (social information processing, Cognitive Behavioral Therapy - CBT, and self-control), assessment (Social Cognitive Skills Test), and treatment (cognitive group therapy for aggressive boys, and the distinction between reactive and proactive aggression).

## **Theoretical Issues**

### *Social Information Processing and CBT*

In chapters 3 and 4, the effects of CBT on aggressive boys – based on the Social Information Processing (SIP) model – were described. The cognitive-behavioral framework assumes that aggression is not merely triggered by environmental events, but rather through the way in which these events are perceived and processed by the individual. This processing refers to the child's appraisal of the situation, anticipated reactions of others and self-statements in response to particular events. The SIP model has important implications for diagnosis and treatment.

Skilful processing at each step of social information processing is hypothesized to result in competent performance within a situation, whereas biased or deficient processing is hypothesized to result in deviant social behavior. Research on individual differences in social information processing has consistently shown that aggressive children perceive, interpret, and make decisions about social stimuli in ways that increase the likelihood of their engaging in aggressive acts (Yoon et al., 1999). Aggressive children fail to encode all relevant environmental cues, they react on recency bias cues, show a hostile attribution bias towards other children, generate fewer and less effective solutions for problematic situations, generate more aggressive and fewer assertive solutions, and do not worry about negative consequences of their actions. These cognitive deficits are most likely to appear in situations where they feel provoked, teased, or threatened (Prins and Van Manen, 2005).

The presence of distinctive social information processing patterns has important implications for intervention. The strengths and weaknesses of the social cognitive pattern of each child can be assessed prior to treatment, and interventions can be tailored to the specific problems and strengths of (each type of) aggressive children and youth.

Although Crick and Dodge (1994) assert that emotion is an important component of social information processing, the role of emotion is not well articulated in their model. An integrated model of emotion processes and cognition in the processing of social information has been proposed (see, Lemerise and Arsenio, 2000). Not only will the inclusion of emotion processes in this SIP model expand its explanatory power, it may also increase the clinical relevance of SIP models for CBT, because skilful regulation of one's emotions is a central target of CBT-procedures.

The need to uncover the specific underlying social-cognitive mechanisms of therapeutic change in CBT is still present (Chapter 4 and 5). The SIP model will have a clinically meaningful impact on CBT practice, if therapeutic manipulation of social information processing variables will lead to meaningful decreases in problematic behaviors. By testing the (social) cognitive mechanisms of change, CBT-research will help testing the SIP model. Ultimately, advances in CBT will depend on a better understanding of the differences in the social information processing profiles of normal and clinically referred children and youth. The results of chapter 5 suggest, that the underlying social cognitive processes are difficult to isolate because of numerous feedback loops at each of the six stages of social information processing and many parallel processes of social stimuli which are running at the same time (Crick and Dodge, 1994). Another factor that may be at work is that the social cognitive intervention program "Self-Control" is a multi-component intervention that target multiple change processes, e.g. social cognitive deficits and distortions, problem solving skills, self-control techniques, selfregulation skills, and the process of change is not due to one dominant factor (Chapter 3 and 4).

*Self-Control*

The effect-sizes of the Weekly Report for Child, Parent and Teacher assessing aggressive behavior in our treatment-outcome study were medium to large for the SCIP children and small to medium for the SST children (see Chapter 4). The Weekly Report may be considered not only a clinically relevant measure, but also may have functioned as an additional treatment component. Completing the Weekly Report appeared to follow the steps of the self-control process. Each week, the aggressive boys had to consider their behavior on the five items of the Weekly Report (self-observation), had to evaluate their behaviors (self-evaluation), and depending on the result, had to reinforce themselves (self-reinforcement). In this manner, the effect-sizes of the Weekly Report for Child, Parent, and Teacher represent measures of self-control.

The effect size for the SCIP was found to be larger at follow-up than at posttest. This is an interesting finding. Perhaps, in the SST behavioral changes mainly were achieved through therapist's use of extrinsic reinforcement (token economy), where as in the SCIP the child behaviors gradually became reinforced intrinsically (e.g., through self-control techniques), which may have resulted in higher scores at 1-year follow-up. Future treatment-outcome research should examine this possibility.

Another promising pathway in future research related to self-control is the link between aggressive behavior and temperament. An important component of the child's biological predispositions is his/her emotion style or emotionality. Children's temperament vary in the intensity with which children experience and express emotions and in their skills for regulating emotions. These individual differences in emotionality and regulatory abilities are related to social competence (Eisenberg et al., 1997). High emotionality combined with poor regulation skills predict poorer social functioning and problem behaviors, whereas children with high emotionality and good regulation skills are less at risk for behavior problems (Eisenberg et al., 1997). Aggressive children have high emotionality and low effortful control. This finding emphasizes the need to pay special attention in the

social cognitive intervention program to self-control techniques and regulation skills.

### **Assessment**

While, as a group, aggressive children have been found to show cognitive deficits and distortions, each individual child may be characterized by its own typical social cognitive pattern and may show typical weaknesses and strengths in the processing of social cognitive information. Deficits may be located on all steps of Dodge's model, but may also be located on just one step. For treatment purposes it may be more useful to try to describe the specific deficits in the processing of social cognitive information of the individual child and to know on which social cognitive level the problematic child shows deficits. In the assessment procedure, the Social Cognitive Skills Test (SCST), as described in Chapter 2, is meant to make such a refined assessment of social cognitive deficits possible, especially it assesses deficits in specific social cognitive skills of an aggressive child.

The SCST is based on the assumption that the social cognitive development of children takes place in a sequence of eight social cognitive skills, which are hierarchically organized in such a way that cumulative learning may occur. The eight social cognitive skills represent a more extensive differentiation of age-related social cognition than the four social cognitive levels postulated by Selman (1980, 2003). One of the aims of the SCST is to determine the specific deficits in the social cognitive functioning of a child. When the child's score is under his age-level one should pay extra attention to the child in case of a problematic development.

The SCST has good psychometric qualities. It fulfils the requirements for test construction, i.e. standardisation, objectivity, reliability (intern consistency, and test-retest reliability are good), and validity (construct, convergent, and concurrent validity are good).

The SCST can be used for, (a) selection of children, who indicate an arrest in normal development of social cognition, (b) screening of age-adequate development of social cognitive skills, (c) treatment-focused

assessment, because the outcome refers to specific deficits in social cognitive skills, which then can be treated (Van Manen, 2001), and (d) evaluation of an intervention focused on deficits in SIP (Van Manen et al., 2004).

Future research on the SCST may be conducted with children with specific problem behavior who show deficits and distortions in social information processing. Research on the SCST with autistic children, children with CD, ODD, ADHD, and non-verbal learning disorder (NLD) has been initiated at various research centers. At the University of Manchester, Hare and colleagues, for example, have used the SCST in their research on the development of social cognitive skills in children with autism. There were significant differences found between the control group and the experimental group which suggest that the SCST could be a valid assessment of social cognitive skills in autism (Coleman et al., submitted for publication).

## **Treatment**

The social-cognitive intervention program “Self-control” – in Chapter 3 and 4 - intervenes in the social information processing of the conduct-disordered children. Important differences between this program and other intervention programs are, (a) that from the first contact on in assessment and treatment the child is an active participant, and learns to master new processes of thinking, feeling and socially adaptive functioning, (b) that explicit attention is paid to the learning and practicing of social-cognitive skills to diminish deficits and distortions in the social information processing, (c) that children do not learn to respond in one way in a specific social problem situation, but are taught a general way of social information processing in order to solve social problems on their own, and finally (d) that in contrast to laboratory studies, the effectiveness of this intervention program has been investigated under controlled condition in natural settings

such as, health centers and schools, and has been implemented on a routine, ongoing basis.

The therapist's intention is to maximize the problem awareness of the aggressive boys. Increased problem awareness results in a better generalization of behavior change to daily life (Kendall et al., 1991; Guevremont and Foster, 1993). Completing the Weekly Report at the start of each therapy session, and practicing self-evaluating behaviors contributes to this awareness.

It thus appears that child-based CBT interventions can be an effective part of a multimodal treatment for children, particularly older children, who exhibit high levels of aggressive behavior. The generalization effect may be larger and the chance of relapse into old behavior through stress and negative life-events will be reduced, when conduct-disordered children are offered short-term booster sessions, although this has not yet been evaluated. The booster sessions may consist of an individual program of five sessions, which can be filled in with exercises for each age from eight till eighteen years old. The exercises are meant to learn problem solving skills, anger coping skills, self-control techniques, social-cognitive skills and self-regulation skills. In the individual treatment one may focus on the specific deficits and distortions in the social information processing of each conduct-disordered child.

Future research may focus on enhancing the therapeutic power of the SCIP in clinical practice. This can be achieved in different ways by (a) developing reliable and valid measures for all stages of Dodge's social information processing model, by (b) bridging the traditional individually focused functional analyses and the developmental-ecological perspective (e.g., incorporating the effects of the problem-behavior on others, such as peers or family members, and examining the role of others in maintaining the problem-behavior) (Ollendick, 1996), by (c) further differentiating the emotions, cognitions and behaviors which are specific for aggressive children, and integrating this knowledge into the social cognitive intervention program, and, finally, by (d) improving the quality of the

therapist in the non-specific therapeutic skills and in the therapeutic process of the social-cognitive intervention method.

In general, future research may be concerned with the following four issues. First, although many studies have shown that conduct-disordered youths experience various cognitive distortions and deficits, the specificity of these cognitive deficits among diagnostic groups and youths of different ages (do cognitive distortions characterize youths with conduct problems rather than adjustment problems more generally) needs to be established, as well as whether some of the cognitive processes are more central than others, and how these processes unfold developmentally (Kazdin, 1997). Second, more intervention studies will have to be conducted with samples that are similar to clinically referred subjects, that is with high levels of comorbidity and living in disturbed families. Treatment trials will have to be extended to clinical setting (real-world tests). Third, further work is needed to evaluate factors (child, family, and parent characteristics) that contribute to responsiveness to treatment, such as age, comorbidity, families with high levels of impairment, and lower reading achievement. Finally, more research need to target mechanisms of change in CBT for aggressive youths. Several studies have demonstrated that CBT affects the proposed mechanisms of change in the hypothesized directions (e.g., increases in problem solving skills and self-control, and decreases in cognitive distortions and hostile attributions) and that changes in these proposed mediators are correlated with child behavior change at post-treatment. However, no studies have demonstrated convincingly that changes in the proposed mechanisms temporally precede the changes in therapeutic outcome and that changes in the proposed mechanisms account for the effect of treatment condition on therapeutic outcome. Until these criteria are met, researchers cannot be sure the therapeutic change associated with CBT for child conduct problem is the result of cognitive and behavioral changes in the child, rather than some other, related factor. Knowledge about why and how CBT with aggressive youths works eventually will serve as a basis for maximizing its efficacy in clinical practice (Weersing and Weisz, 2002).

*Cognitive Group Therapy for Aggressive Boys*<sup>1</sup>

Some authors recently have suggested, that “high-risk youth are particularly vulnerable to peer aggregation, compared with low-risk youth. Association with deviant peers in early adolescence, under some circumstances, inadvertently reinforces problem behavior” (Dishion et al., 1999). This assertion led many to conclude that group therapy for youths with aggressive or delinquent behavior or oppositional or conduct disorder may produce more harm than benefit and therefore should not be provided. We have found in our treatment-outcome study that two intervention programs provided in-group setting for aggressive boys aged 9-13 years were effective in aggressive boys. Unfortunately, we did not include an individual cognitive-behavioral therapy (CBT) condition, because our primary interest was in studying the influence of cognitive components in a CBT program, rather than evaluating the specific contribution of group versus individual treatment formats. For that same reason, we did not include measures for peer group interaction and did not monitor whether the youths met outside the therapeutic sessions. Our impression, however, is that this hardly occurred. The assertion by Dishion et al. (1999) that “association with deviant peers in early adolescence, under some circumstances, inadvertently reinforces problem behavior“ was based on their own research and to some extent has been supported by recent research (e.g. Mahoney et al., 2004), but does not necessarily apply to the format of therapy groups for children with oppositional and conduct disorders as used in our study (see also Sukhodolsky, Kassinove, and Gorman, 2004). We fail to see that bringing aggressive boys together in groups, may increase aggressive behavior and should lead to the conclusion that short-term behavioral group therapy for youths with aggressive or delinquent behavior or oppositional or conduct disorder may produce more harm than benefit and therefore should not be provided. Apart from our study, there are also other studies that show that group treatment might be effective, especially in substance abuse as discussed by Kaminer (2005). Shechtman (2004)

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compared individual versus group therapy in aggressive boys. Contrary to what one might expect (Dishion et al., 1999), results offered partial support for the greater effectiveness of group, compared to individual therapy in reducing aggression, but not on all measures. Taken together, there is now some evidence that group therapy may be effective in small groups of aggressive youth, provided that the treatment is conducted according to a manual by experienced therapists, see Kaminer (2005), van Manen et al. (2005), Dishion (2005), and Dishion and Dodge (2005).

Only further studies, comparing individual and group formats of manual-based treatment for aggressive youths can answer this question in a more definite way. In doing so, it might be important to assess peer group development through direct behavior observations and monitor contacts outside the therapy setting in addition to measures of aggression. Moreover, intervention studies such as ours where children are treated in groups should better control for the effects of group differences (see Baldwin et al., 2005). Only then can we determine whether treating aggressive children and youth in groups is an effective intervention.

#### *Reactive and Proactive Aggression*

For treatment purposes it can be helpful to subdivide aggression into subtypes. Many dichotomies have been proposed including overt versus covert, affective versus predatory, hostile versus instrumental, and reactive versus proactive. The distinction between reactive and proactive aggression has been proposed by Dodge and Coie (1987), and has been of special interest by researchers and clinicians. Dividing aggressive behavior in relevant subgroups is not only of theoretical importance, but also for the composition of treatment groups, and for the therapist in specific interventions.

Following Dodge and Coie (1987), many researchers (Day et al., 1992; Vitaro et al., 1998; Poulin and Boivin, 2000) distinguish between reactive and proactive aggression. Reactive aggression is characterized by “hot-blooded” anger, menacing hostile attacks, defensive postures and a lack of self-control. The reactive aggressive child feels quickly threatened

and is afraid. Proactive aggression is characterized by “cold-blooded”, less emotional, highly organized and use of aggression instrumentally to achieve goals (e.g., obtain an object) (Dodge et al., 1997), and may be related to psychopathy in adults. They are perceived by their peers, as having leadership skills and a sense of humor. Reactively aggressive and proactively aggressive types of antisocial youth not only differ in developmental histories but also in social information processing patterns. Failures in the first four steps (cue-related processing, e.g., encoding and interpretation of social situations) of Dodge’s information processing model are related to reactive aggression, whereas failures in the last two steps (outcome-related processing, e.g., evaluation of selected response strategy) are related to proactive aggression (Dodge et al., 1997). This would imply that the eight social cognitive skills correspond with the first four steps of Dodge’s model. Thus, it is hypothesized that reactive aggressive children will have more difficulty with mastering the social cognitive skills than the proactive aggressive children. We examined the question whether the SCST differentiates between reactive and proactive aggressive children (Chapter 2). It was expected that the proactive aggressive children would score significantly better on the SCST than the reactive aggressive children. No significant difference between the two groups was found however. Moreover, it proved very difficult to form subgroups of pure proactive and pure reactive aggressive children in clinical practice. Even though the dichotomy between reactive and proactive aggression seems to be theoretically meaningful, internally consistent, and statistically valid, we can expect a certain degree of coexistence of these two components in aggressive children (Vitiello and Stoff, 1997). Many instrumentally aggressive behaviors have clear hostile components. Several researchers have found a high correlation between the two constructs, reactive and proactive aggression, (e.g., Dodge and Coie (1987), Price and Dodge (1989), and Poulin and Boivin (2000)). In our own research we also found a highly significant correlation. This indicates a substantial overlap between reactive and proactive aggression. Despite this high correlation, the two constructs of aggression contribute uniquely to a child’s involvement in

aggressive exchanges with peers, which suggests that both should be taken into account to understand boys' involvement in aggressive episodes (Poulin and Boivin, 2000).

Children with controlled-proactive-instrumentally aggression are more likely to respond to cognitive behavioral therapy. They are sensitive to environmental reinforcers and able to adjust their conduct accordingly. The study in Chapter 5 pointed out some indications to confirm this notion by the significant correlations between proactive aggression with social cognition and self-control. Children with impulsive-reactive-hostile aggression can be considered to be less capable of self-control and to be driven to aggression by poor frustration, negative affects such as anger and fear, and a cognitive distortion of the environmental circumstances (Vitiello and Stoff, 1997).

### **Concluding Remarks**

In sum, a new test and a new treatment for aggressive children have been developed and tested. Reliability and validity of the SCST are good and norms are collected at this moment. The study on the efficacy of the social cognitive intervention program "Self-Control" indicated that the group therapy for aggressive boys is effective, and these results have been supported by the positive effects of other recent research (Vincken et al., 2004; Muris et al., 2005). Given the multicausal and multifaceted nature of the problems of aggressive children, the social cognitive intervention program "Self-control" contributes modestly to the decrease of aggressive behavior. On the other hand it is promising to find that a short-lasting group therapy such as "Self-control" shows an improvement in adequate social behavior with significant effects at post-test and one-year follow-up. The preventive effect of the social-cognitive intervention program may contribute to the solution of the ongoing, extensive problems which conduct-disordered children and adolescents cause. The search for the underlying social cognitive processes has to be continued in the future to answer the question "what is the working ingredient in CBT of aggressive boys".

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## Summary in Dutch

### **Samenvatting van Diagnostiek en Behandeling van Agressieve kinderen vanuit een Sociaal-Cognitief Perspectief**

De diagnostiek en behandeling van agressieve kinderen bezien vanuit een sociaal cognitief perspectief is het onderwerp van dit proefschrift. Ondanks de toename van agressie, criminaliteit en verwijzingen naar hulpverlenende instanties is de aandacht voor onderzoek naar diagnostiek en behandeling van agressieve kinderen verhoudingsgewijs klein. De noodzaak hiervoor is aangetoond in bijvoorbeeld, (a) longitudinale studies, die verbanden laten zien tussen agressief gedrag en een mislukte schoolcarrière, geringe populariteit onder leeftijdgenoten, tiener ouderschap, arrestaties, delinquentie en drugsgebruik, en (b) dat een derde tot de helft van de verwijzingen van kinderen naar instellingen voor geestelijke gezondheidszorg agressieproblematiek betreft. De geringe aandacht wordt mede bepaald door de complexiteit van de processen die het ontstaan en het in stand houden van de agressie bepalen.

Sociale vaardigheidstrainingen laten stabiele positieve effecten zien op het sociaal functioneren van sociaal incompetente kinderen. Een vermindering van agressief gedrag wordt echter niet voldoende waargenomen. Dit vormde een reden om specifieke aandacht te besteden aan de groepsbehandeling van agressieve kinderen. Door de opkomst van het sociaal informatie verwerkings model van Dodge werd in een theoretisch fundament voor de behandeling van agressieve kinderen voorzien. Het hoofddoel van dit proefschrift is het onderzoeken van de effectiviteit van een sociaal cognitieve groepsbehandeling voor agressieve kinderen. Daarnaast werd de vraag onderzocht of het focussen op tekorten en vervormingen in sociaal cognitieve processen in plaats van focussen op

alleen het aanleren van sociale vaardigheden het effect van de behandeling zou versterken. Samenlopend hiermee is een sociaal cognitieve vaardigheden test ontwikkeld om een zekere lacune in de diagnostiek van de sociaal cognitieve ontwikkeling van kinderen, in het bijzonder kinderen met een tekort in de sociale informatie verwerking zoals agressieve kinderen en kinderen met ADHD of autisme, op te vullen.

In Hoofdstuk 1 wordt de definitie van het gedrag van de onderzochte groep van agressieve kinderen beschreven, de prevalentie van agressief gedrag bij kinderen, en de noodzaak van het behandelen van agressieve kinderen. De voorwaarden voor een effectieve behandeling worden besproken en het sociale informatie verwerkings model van Dodge wordt uiteengezet. Speciale aandacht krijgt de rol van normale en afwijkende ontwikkeling in de diagnostiek en behandeling van agressieve kinderen.

In vergelijking met onderzoek naar de sociale informatie verwerking in de verandering van agressief gedrag is er weinig aandacht besteed aan het ontwikkelen van diagnostische instrumenten om de tekorten in sociale informatie verwerking bij agressieve kinderen te meten. Bestaande instrumenten die sociaal cognitieve processen meten, (a) focussen op een beperkt aantal sociaal cognitieve processen, of (b) blijken onvoldoende valide en klinisch bruikbaar te zijn. Een test die tekorten meet in specifieke sociaal cognitieve vaardigheden van een agressief kind is nog niet voorhanden. Vandaar dat de ontwikkeling van de Sociaal Cognitieve Vaardigheden Test (SCVT) is geïnitieerd. Hoofdstuk 2 behandelt de ontwikkeling en psychometrische evaluatie van de SCVT. De SCVT is gebaseerd op het structureel hiërarchisch ontwikkelingsmodel van sociaal cognitief functioneren van Selman, en bestaat uit zes verhaaltjes met corresponderende plaatjes. Elk verhaaltje meet acht sociaal cognitieve vaardigheden. De SCVT houdt rekening met het ontwikkelingsniveau van het (agressieve) kind en zijn tekorten in de sociale informatie verwerking. Drie studies naar de psychometrische kwaliteiten van de SCVT worden in Hoofdstuk 2 besproken. Studie 1 ( $n = 47$ ) ondersteunt de gedachte, dat (a) de SCVT discrimineert tussen agressieve en niet-agressieve kinderen, en dat

(b) er een dalende trend in de scores van de SCVT is als de sociaal cognitieve vaardigheden in complexiteit toenemen. Studie 2 ( $n = 115$ ) bevestigt de resultaten van studie 1 en laat verder zien, dat (a) er geen verschil in scores wordt gevonden tussen reactieve en proactieve agressieve kinderen, en (b) er een positieve associatie tussen chronologische leeftijd en sociaal cognitief niveau van agressieve en niet-agressieve kinderen bestaat. Studie 3 ( $n = 48$ ), ten slotte, bevestigt de eerder gevonden resultaten en toont aan dat agressieve kinderen problemen hebben met het verbaliseren van hun gedachten, gevoelens en intenties, en laten een tekort in non-verbaal sociaal inzicht zien.

In de pilot-studie (Hoofdstuk 3) naar de effecten van het sociaal cognitieve interventieprogramma “Zelfcontrole” voor agressieve kinderen in de leeftijd van 10 tot 13 jaar, is specifiek onderzocht of de agressieve kinderen na afloop van de groepsbehandeling in sociale probleemsituaties (a) minder gedragsproblemen vertonen, (b) meer zelfcontrole hebben en minder impulsief zijn, en (c) betere sociaal cognitieve vaardigheden laten zien. Drie sociaal cognitieve groepsbehandelingen met 16 gedragsgestoorde kinderen vonden plaats. De resultaten werden geëvalueerd met leerkracht en oudervragenlijsten en zelfrapportage van het kind. De meerderheid van de gedragsgestoorde kinderen (9 van de 11) laten positieve resultaten zien. Dit was de aanleiding om een gecontroleerd effectonderzoek (Hoofdstuk 4) te starten, waarbij de gedragsgestoorde kinderen at random worden toegewezen aan drie condities, (1) het sociaal cognitief interventieprogramma, (2) een sociale vaardigheidstraining, en (3) een wachtlijst controlegroep.

Ondanks het feit, dat de literatuur aangeeft dat oudertrainingen één van de meest veelbelovende behandelmodaliteiten zijn voor gedragsgestoorde kinderen (Burke et al., 2002) staan ouders hier wantrouwend en pessimistisch / afhoudend tegenover. Ouders met kinderen met agressieproblematiek vinden meestal dat de oorzaak en daarom ook de oplossing van het probleem bij het kind ligt en niet bij de ouders of in de interactie tussen ouders en kind (Durlak et al., 2001). Ouders hebben daarom een voorkeur voor een behandeling voor hun kind en niet voor

zichzelf. Ondanks de grote aantallen hulpzoekenden zijn er weinig kindgerichte interventieprogramma's voorhanden, die theoretisch onderbouwd en wetenschappelijk getoetst zijn. Dit was een extra reden om een gecontroleerd effectonderzoek te starten met het kindgericht sociaal cognitieve interventieprogramma "Zelfcontrole", een groepsbehandeling voor agressieve en oppositionele kinderen in de leeftijd van 9 tot 13 jaar. Hoofdstuk 4 beschrijft het gerandomiseerde effectonderzoek met twee controle groepen bij 97 agressieve jongens. Voormetingen, nametingen en follow-up metingen na een jaar werden gedaan met maten voor agressief gedrag, zelfcontrole, sociaal cognitieve vaardigheden en adequaat sociaal gedrag. De resultaten tonen bij beide behandelcondities – sociaal cognitief interventieprogramma en sociale vaardigheidstraining - aan (1) een significante toename in adequaat sociaalgedrag, sociaal cognitieve vaardigheden en zelfcontrole, en (2) een significante afname van agressief gedrag. Er bleek een significant verschil tussen behandelde en niet-behandelde kinderen, en tussen het sociaal cognitieve interventieprogramma "Zelfcontrole" en sociale vaardigheidstraining op verschillende kind, ouder en leerkracht maten. Bij follow-up na een jaar bleek de effectgrootte bij het interventieprogramma "Zelfcontrole" 0.76 te zijn tegen een effectgrootte van 0.56 bij de sociale vaardigheidstraining. De resultaten ondersteunen de verwachting dat focussen op tekorten en vervormingen in sociaal cognitieve processen in plaats van focussen op alleen het aanleren van sociale vaardigheden het effect van de behandeling versterkt, omdat een significant grotere verbetering plaats vond bij de kinderen die werden behandeld met het sociaal cognitieve interventieprogramma "Zelfcontrole". Dit houdt in, dat een kortdurende sociaal cognitieve groepsbehandeling gedrag van agressieve kinderen op een positieve manier kan beïnvloeden.

De vraag is nu, welke mechanismen en processen zijn verantwoordelijk voor de verandering van het agressieve gedrag van kinderen, die een sociaal cognitieve groepsbehandeling krijgen. En kunnen sociale cognitie en zelfcontrole van prognostische waarde zijn voor gedragsverandering. Daarom is in Hoofdstuk 5 de relatie onderzocht tussen, (a) sociaal cognitieve verandering (verbeterde sociaal cognitieve

vaardigheden) en gedragsverandering (afname in agressief gedrag) en (b) een toename in zelfcontrole en gedragsverandering (afname in agressief gedrag), omdat naast “sociale cognitie”, “zelfcontrole” de kern vormt voor verandering in het sociaal cognitieve interventieprogramma. Het hoofddoel van deze studie was de assumptie te onderzoeken of het verhogen van het sociaal cognitieve niveau door het corrigeren van de tekorten en vervormingen in de sociale informatie verwerking zou resulteren in een afname van het agressieve gedrag van kinderen. Het onderzoek van het veranderingsproces toont de aanwezigheid aan van een potentieel mediatie effect voor sociale cognitie (33%) en zelfcontrole (21%) in cognitieve gedragstherapie bij agressieve jongens. Na statistische evaluatie met een specifieke mediatie test blijkt er slechts in twee gevallen (8.3%) sprake te zijn van significante mediatie met zelfcontrole als mediator. Hiermee is enige ondersteuning gevonden voor de theoretische onderbouwing van het sociaal cognitieve interventie programma. De mediërende rol van sociale cognitie en zelfcontrole was bij het sociale cognitieve interventie programma groter dan bij de sociale vaardigheidstraining. Concluderend kan gesteld worden, dat het verhogen van het sociaal cognitieve niveau geen garantie geeft voor een verandering in agressief gedrag.

Hoofdstuk 6 sluit af met algemene conclusies en aanbevelingen voor toekomstig onderzoek. Er is een nieuwe test en een nieuwe groepsbehandeling voor agressieve kinderen ontwikkeld. De test (Sociaal Cognitieve Vaardigheden Test – SCVT) voldoet aan de eisen van standaardisatie en objectiviteit, betrouwbaarheid en validiteit zijn voldoende en thans vindt er een normeringsonderzoek plaats. De SCVT kan gebruikt worden als instrument voor (a) selectie van kinderen, die een achterstand laten zien in de normale ontwikkeling van sociale informatie verwerking, (b) screening van leeftijdsadequate ontwikkeling van sociaal cognitieve vaardigheden, (c) handelingsgerichte diagnostiek, omdat de uitkomsten refereren aan eventuele tekorten in sociaal cognitieve vaardigheden, die behandeld kunnen worden, en (d) evaluatie van een interventie.

De effectiviteit van het sociaal cognitieve interventieprogramma “Zelfcontrole” is aangetoond, en tevens door andere onderzoekers effectief



bevonden (Vincken et al., 2004; Muris et al., 2005). Er is in enige mate een relatie gevonden tussen sociale cognitie en gedragsverandering en tussen zelfcontrole en gedragsverandering. Echter het heeft geen prognostische waarde, in die zin, dat een verhoging van sociale cognitie niet automatisch samen zal gaan met een vermindering van agressief gedrag.

Dit geeft aan waar in de toekomst onderzoek naar verricht kan worden. Naast het zoeken naar mediërende en modererende variabelen, die van invloed kunnen zijn op het ontstaan en in stand houden van agressief gedrag is het belangrijk om onderzoek naar preventieve interventies te stimuleren. Hierbij lijkt onderzoek naar temperament en in het bijzonder naar “effortful control” in relatie tot het ontwikkelen van agressief gedrag veelbelovend.

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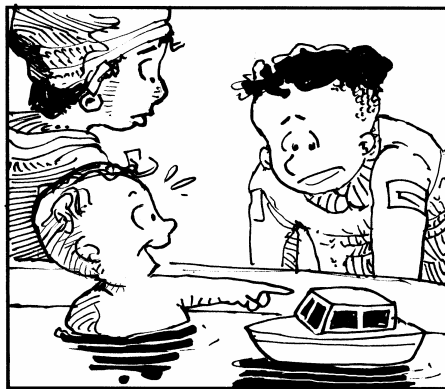
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# Story 1. The Little Boat



**Story 1. THE LITTLE BOAT**

1. This boy is playing with his little boat.
2. His boat sinks.
3. He walks home.
4. At home his little brother is playing with a boat in the bath.
5. The boy looks at his little brother's boat.
6. The boy starts to cry.

Name	Birth date	Test date	Age

Question	Answer	Score
<b>1. Identifying</b> How does the boy feel in picture 1?	Happy, pleased, joyful, glad, proud, satisfied, content. <CQ (Continuing Questioning) at Cool, Nice, Good, Fine.>	3
<b>AQ</b> How does the boy feel in picture 3?	Sad, disappointed, pitiful. <CQ at Not cool, Not nice, Not good, Not fine. >	1
	Cool, Nice, Good, Fine. Not cool, Not nice, Not good, Not fine.	0
<b>2. Discriminating</b> In which two pictures are the boy and his little brother the same?	In picture 1 and 4, or 2 and 6, or 1 and 5.	3

For 4, 5 and 6 year olds: How does the boy feel in picture 1? <i>Happy.</i> Call me a number of a picture in which his little brother has the same feeling.		
AQ Are the boy and his little brother feeling the same on picture 5?	No, he feels different.	1
		0
<b>3.</b> <i>Differentiating</i> The little brother is thinking of his little boat in the bath. What is the boy thinking about in picture 5?	His own little boat; his boat which sank; he has no little boat; I wish I still have my little boat. < When the child points out the little boat in picture 1, this will be reckoned as good> < CQ at “he thinks, I want a new boat, <i>or</i> also a boat, <i>or</i> to build a new boat”.>	3
HQ Why is he so sad?	“Because his little boat sank”. Then you say: Yes, I will repeat question no 3 one more time. What is your answer, now?	1
		0



<p><b>4. Comparing</b> How different are the feelings of the boy in picture 2 and his little brother in bath in picture 4? How do they feel?</p>	<p>The boy in picture 2 feels a bit frightened; the little brother in picture 4 feels a bit happy; <i>or</i> The boy is not happy (sad/frightened) and the little brother is indeed happy (glad/merry/cheerful). &lt; Good is: I think that he is surprised, here, that his little boat sinks all of a sudden, and the little brother is happy.&gt; &lt; CQ when the child calls one of the two feelings.&gt;</p>	3
<p>HQ The little brother is playing with his little boat in picture 4. How does he feel?</p>	<p>“Happy/glad”. Then you say: Yes, I will repeat question no 4 one more time. What is your answer, now?</p>	1
		0
<p><b>5. Perspective taking</b> What does his mother think when the boy comes home in picture 5?</p>	<p>What has happened, why are you looking that way? What has happened to him?</p>	3
<p>HQ Suppose you are a mother, what might you dare to say in that position</p>	<p>What has happened to you? Why are you looking in that peculiar way?</p>	1

in picture no 5 to the boy?		
		0
<b>6. <i>Relating</i></b> Can you tell me why the boy in picture 5 is not as happy as his little brother?	Because his boat sank in picture no 2 and his little brother is playing with a boat that is not sinking in picture no 5; because his boat has been sinking; because his little brother has a boat; <i>or</i> Because he thinks about his own boat by looking at his little brothers' boat, which sank a few minutes ago; I wish, I still had my little boat.	3
HQ Look at picture 2. What happened there?	The boys' little boat sinks. Then you say: Yes, I will repeat question no 6 one more time. What is your answer now?	1
		0
<b>7. <i>Coordinating</i></b> The mother is puzzled when the boy starts to cry. Why is she puzzled?	Because she doesn't know what has happened; <i>or</i> Because mother can't understand why the boy is so sad, when he looks at his little brothers' boat; <i>or</i> Because she thinks, didn't you enjoy yourself (didn't you have fun)?; <i>or</i> She thinks of course that something terrible has happened and in that case I should be surprised, too.	3

Appendix A

HQ Was she there when the boat sank ?	“No”. Then you say: All right, I will repeat question no 7. What is your answer now?	1
		0
<b>8. Taking into account</b> What can the boy do so that his mother will not be puzzled ?	Stop crying and explain or tell her what has happened. My self-made little boat sank, my little brother is happy sitting in bath with his little boat and I want my little boat back; <i>or</i> The boy may tell his mother, that his little boat sank, and at the moment he saw his little brothers’ boat he became sad again.	3
HQ Can the mother help the boy when she doesn't know what's happened?	“No”. Then you say: I will repeat question no 8. <Answers the child: “Yes”, then 0 points.>	1
		0

Total score:

## **A Brief Impression of the Social Cognitive Intervention Program 'Self-Control'**

The treatment manual describes the theoretical framework, goals, strategies, exercises, materials and hand-outs that were used for each treatment session (Van Manen, 2001). Self-Control is a cognitive-behavioral treatment built on the following four pillars: the social cognitive processes of Dodge's model, problem solving abilities, social cognitive skills and self-control. Therefore, attention was paid in eleven treatment sessions to:

*Session 1.* Model Dodge step 1: perceiving and interpreting signals and cues from the environment and from within oneself. Decoding verbal and non-verbal social cues, internal and external cues. Other themes are: confidence, control and listening.

*Session 2.* Model Dodge step 1 with special attention to visual and auditory cues. Communication rules. The social cognitive skills: "identifying" (the ability to discern the existence of subjective perspectives of others and oneself and to recognize and label them) and "discriminating" (the ability to judge whether two or more observable perspectives are similar without the requirement to verbalize or label the specific similarities).

*Session 3.* Model Dodge step 1 and 2. Decoding, Interpreting and mentally represent external and internal cues. The social cognitive skill "differentiating": the awareness that two or more persons in similar or dissimilar situations do not necessarily have similar or identical perspectives.

*Session 4.* Model Dodge step 2 and 3. Clarification of goals and response search. Problem solving: defining the problem and generating alternative solutions. Social cognitive skill "comparing": the ability to determine and label discrepancies and similarities between observable perspectives of different persons in the same situation. Discriminating feelings and emotions between oneself and another child.

*Session 5.* Model Dodge step 3 and 4. Response decision after evaluating consequences. Social cognitive skills "differentiating" and "comparing". Giving and receiving compliments.

*Session 6.* Model Dodge step 3 and 4 in combination with problem solving. Social cognitive skill "perspective taking": the ability to infer the perspective of another person. Taking the position or role of another person and inferring the perspective of that person. Self-control skills, self-observation, self-evaluation and self-reinforcement and verbal self-instruction.

*Session 7.* Model Dodge step 3, 4 and 5. Response decision after evaluating pros and cons on short and long-term range. Enactment of the best solution. Social cognitive skill "relating": the ability to relate at least two perspectives and their causes. Self-control and self-instruction. Analyze a provoking social situation by anger control: (a) decoding and recognizing angry feelings and the physical reactions to it, (b) discriminating the angry feelings by yourself and the other(s) and learning to verbalize the feelings, (c) physical arousal has different meanings like being bored, annoyed or tired and not all arousal is called anger any longer, (d) developing a plan to cope with the situation, and (e) using problem solving abilities, self-observation, self-evaluation, and self-reinforcement.

*Session 8.* Model Dodge step 4, 5 and 6. Making a choice after evaluating all the possible consequences. Behavioral enactment and evaluation of the enactment (problem solving abilities). Social cognitive skill "coordinating": the ability to take a third person's position ; the awareness that a person's inference of a perspective of another person can be the object of his own thinking.

*Session 9.* Model Dodge step 4, 5 and 6. Learn of past experiences and make use of it in new social situations. Social cognitive skill "taking into account": the ability to take perspectives of others and oneself into account at the same time. Self-control and self-instruction including cue-exposure. Self-control after physical contact, teasing and name-calling.

*Session 10.* Model Dodge step 1 – 6. Stand up for yourself using self-control. Coping with provocation in an appropriate way.

*Session 11.* Model Dodge step 1 – 6. Quiz about all what was learned in the preceding sessions. Feedback and diploma.

All sessions had a similar structure: starting with good and bad news of the past week according to exercises and experiences in between the sessions concerning social interactions, followed by practising elements from the model of Dodge, problem solving abilities, social cognitive skills and self-control, ending with an evaluation and hand-out with the – filled in - topics “what did we do” and “what can I do with it”

The therapists used interventions, such as prompting, cognitive modelling (verbalizing the problem solving steps), shaping, behavior-rehearsal, positive reinforcement and lack of reinforcement for inappropriate behavior (extinction), time-out procedure, and coaching using video feedback.