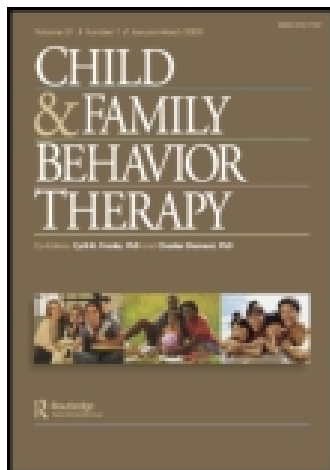


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Reducing Children's Aggressive and Oppositional Behaviors in the Schools: Preliminary Results on the Effectiveness of a Social-Cognitive Group Intervention Program

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Reducing Children's Aggressive and Oppositional Behaviors in the Schools: Preliminary Results on the Effectiveness of a Social-Cognitive Group Intervention Program

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ABSTRACT. This study examined the effects of a social-cognitive group intervention program for children with oppositional and aggressive behaviors. Forty-two children aged between 9 and 12 years who clearly displayed behavior problems at school were treated with this program. A cross-over design was used in which one group of children first received treatment and then assigned to a waiting period, whereas the other group of children first waited and subsequently received treatment.

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Treatment effects were assessed by means of standardized instruments completed by children, parents, and teachers. Results demonstrate that the social-cognitive intervention yielded a significant reduction of behavior problems and an increase of social-cognitive skills as compared to the waiting list control condition. Further, a follow-up assessment of the children who were initially treated indicate that the intervention effects were retained over a three-month 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.

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KEYWORDS. Behavior problems, school children, social-cognitive group intervention

INTRODUCTION

Disruptive behavior disorders such as oppositional-defiant disorder (ODD) and conduct disorder (CD) continue to be among the most prevalent psychiatric disorders of children and adolescents seen in mental health services (e.g., Frick, 1998). ODD and CD are characterized by negativistic, hostile, and defiant behavior towards caregivers, aggression to people or animals, destruction of property, deceitfulness or theft, and serious violations of rules (American Psychiatric Association, 1994), and as such are of great concern to the schools visited with youths suffering from these disorders. Not only do children with ODD or CD often display significant impairment in their academic functioning, they are also frequent burdens to their classmates and teachers who are regularly confronted with the disruptive behaviors and their material and personal consequences. Furthermore, there is increasing evidence that, if left untreated, these disruptive disorders tend to ultimately take the form of crime, violence, and other anti-social phenomena (Loeber, Burke, Lahey, Winters, & Zera, 2000).

It is generally assumed that various biological, psychological, and environmental factors play a role in the pathogenesis of disruptive behavior disorders (e.g., Kazdin, 1995). One psychological factor that is

thought to play an important role in the etiology of ODD and CD is social cognition (Dodge, 1980). According to the social-cognition model of childhood behavior problems as formulated by Crick and Dodge (1994), aggressive and anti-social behaviors in children are the result of deficits and distortions in the way these children process information involving social situations. This model delineates six stages that describe the flow of information through the processing system. During the first stage of encoding some information is selected, either automatically or consciously, for further processing, whereas other information is ignored. The second stage of interpretation involves attaching meaning to the information that is encoded. During the third stage of goal clarification and construction, a goal is activated or constructed to meet the perceived demands of the situation. In the fourth stage of response access and construction, possible responses are retrieved from memory or generated on the basis of available social cues. In the fifth stage of response selection, possible responses are evaluated in terms of self-efficacy expectations, outcome expectations and response appropriateness, and the most positively evaluated response is selected for enactment. The sixth and final stage of enactment involves the production of the selected response. Altogether, the Crick and Dodge model describes the cognitive processes that subsequently take place between the confrontation with a social situation and a child's response to this particular event.

Crick and Dodge (1994; see also Dodge & Crick, 1990) have hypothesized that adequate information processing during each stage results in competent performance in social situations, whereas deficits and distortions during one or more of these stages lead to aberrant social behavior. There is empirical evidence demonstrating that children with disruptive behavior disorders indeed display abnormalities in their cognitive processing of social information. More specifically, these children have a greater tendency to shift their attention towards aggression-relevant cues, more frequently make hostile attributions of peer behavior, often evaluate aggressive behavior as more positive, and show a greater inclination to select and enact an aggressive response than children without such disorders (Crick & Dodge, 1994; Dodge, 1980, 1985; Dodge & Crick, 1990; Dodge & Frame, 1982; Dodge, Lansford, Salzer Burks *et al.*, 2003; Dodge, Murphy, & Buchsbaum, 1984).

Recently, Van Manen (2001) developed the social-cognitive intervention program "Self-control" for treating children with ODD and CD aged between 8 and 13 years. Interestingly, the 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 main purposes of the intervention program are (1) to reduce children's behavior problems in social situations, (2) to improve children's social-cognitive skills, (3) to increase children's levels of self-control, and (4) to reduce children's impulsiveness. More specifically, children learn to solve various social problem situations, such as how to make friends, how to help and support others, how to negotiate, how to be assertive, how to deal with aggression of oneself and others, and so on. So far, two studies have reported positive effects of the "Self-control" program in children with disruptive behavior disorders. In a first pilot-study, Van Manen, Prins, and Emmelkamp (1999) treated 11 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 by this research group (Van Manen, Prins, & Emmelkamp, 2000), 63 children with disruptive behavior disorders were randomly assigned to one of three conditions, namely the social-cognitive intervention "Self-control," a social skills training, and a waiting-list control group. Results show that 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 waiting-list control condition did not. Further, the treatment effects for the "Self-control" intervention tended to be more robust than those found for the social skills training.

Altogether, the social-cognitive program "Self-control" seems to be a theory-based intervention that has shown to yield positive effects in clinically referred children with disruptive behavior disorders. Given the fact that children with ODD and CD cause significant problems in school and taking into account that these disorders have a deteriorating prognosis if left untreated, it seems relevant to test the program as an early intervention with behaviorally disturbed children in the school setting. The present study was set-up as a first attempt to address this issue. Forty-two 9- to 12-year-old children who clearly displayed behavior problems at school, i.e., oppositional behavior, aggressive behavior, and/or delinquent behavior, were treated with the "Self-control" program. A cross-over design was used in which one group of children was first treated with the social-cognitive program during phase 1, and then was assigned to a waiting (i.e., follow-up) period during phase 2. In the other group of children this order was reversed: these children were first assigned to a waiting period (phase 1) and were then treated with the

“Self-control” program (phase 2). Externalizing behavior problems, strengths and difficulties, and social-cognitive skills were measured at three points in time: before phase 1, after phase 1, and after phase 2. In this way, it became possible (1) to study the effects of the social-cognitive intervention program in school children with behavior problems in comparison with a waiting list control condition, and (2) to examine whether the effects of the “Self-control” program were maintained over a follow-up period of several months.

METHOD

Participants

All children ($N = 750$) from grades 6 to 8 of eight primary schools in two medium-sized cities (Sittard and Eindhoven) in the southern part of The Netherlands and their parents were approached by mail and invited to participate in a screening for behavioral problems. A total of 439 children (212 boys and 227 girls; mean age = 10.8 years) and their parents (58.5%) responded favorably to our invitation by returning the informed consent form. From this sample, teachers selected 54 children who displayed significant behavior problems at school. Further informed consent for participation in the intervention trial was obtained for 44 of these children. Two children dropped out during treatment, leaving a final sample of 42 children (32 boys and 10 girls; mean age = 10.3 years, range 9 to 12 years). Most participating children were Caucasian (81%; other children had a Mediterranean, Asian, or Caribbean background). Percentages of children with low, middle, or high socioeconomic background (classified by using the educational levels of both parents, with the guidelines provided by the Dutch Central Bureau of Statistics) were 76.2%, 19.0%, and 4.8%, respectively. Almost half of the children (42.9%) came from split-up families.

Assessment

To study the effects of the social-cognitive intervention program, the following measures were administered at three occasions: before phase 1, after phase 1, and after phase 2.

The *Achenbach questionnaires* (Achenbach, 1991a-c) are well-known and frequently employed measures for assessing emotional and behavioral problems in children and adolescents. These questionnaires list a wide

range of problems, and respondents were asked to indicate on 3-point scales the extent to which each item applies: 0 = *not*, 1 = *sometimes*, or 2 = *often*. In the current study, the parent version, *Child Behavior Checklist* (CBCL), the teacher version, *Teacher Report Form* (TRF), and the self-report version, *Youth Self-Report* (YSR) were used to assess the broad-band factor of externalizing behavior problems, which consists of 30 items covering aggressive and delinquent behaviors. Higher scores on this factor reflect higher levels of behavioral problems.

The *Strengths and Difficulties Questionnaire* (SDQ; Goodman, 1994) consists of 25 items describing positive and negative attributes of children and adolescents that can be allocated to five subscales of five items each: the emotional symptoms subscale, the conduct problems subscale, the hyperactivity-inattention subscale, the peer problems subscale, and the prosocial behavior subscale. Each item has to be scored on a 3-point scale with 0 = *not true*, 1 = *somewhat true*, and 2 = *certainly true*. In the present study, scores on the emotional symptoms, conduct problems, hyperactivity-inattention, and peer problems subscales were summed to yield a total difficulties score, whereas the score on the prosocial behavior subscale reflected strengths. Parent, teacher, and self-report versions of the SDQ were employed to assess children's difficulties and strengths from various points-of-view.

The Achenbach questionnaires and the SDQ both have satisfactory psychometric properties as evidenced by good internal consistency, test-retest stability, and validity (see Achenbach, 1991a-c; Goodman, 2001), and this is also true for the Dutch versions of these instruments (e.g., Muris, Meesters, & Van den Berg, 2002; Verhulst, Koot, Akkerhuis, & Veerman, 1990).

The *Social Cognition Skills Test* (SCST; Van Manen, Prins, & Emmelkamp, 2001) is an interview-based instrument for assessing social-cognitive skills in 4- to 12-year-old children. The test consists of six short stories with corresponding pictures. The stories and pictures depict social scenarios in which children encounter troublesome situations with other children or adults. Following each story, eight questions are asked for assessing children's social-cognitive skills such as emotion recognition, perspective taking, and taking into account. The maximum score to each question is 2. If the answer is not correct or unclear, a help-question is asked. When the answer to this help-question is satisfactory, a score of 1 is given. A wrong answer is scored as 0. A total social cognition skills score can be computed by summing the scores on all questions. A previous study by Van Manen et al. (2001) has yielded initial support for the psychometric properties of the SCST.

Finally, besides the above-mentioned standardized measures, parents and teachers were also asked to give a subjective impression of the intervention effects. More specifically, they were asked to indicate how children's behavior problems (i.e., since the intervention, the problems of the child are "much worse, worse, about the same, improved, much improved") and prosocial behaviour (i.e., since the intervention, the child shows "much more, more, about the same, less, much less" positive behaviors) had changed following the "Self-control" program.

Social-Cognitive Intervention Program

The "Self-control" program developed by Van Manen (2001) is a standardized group intervention for 4- to 6-children with behavior problems. The ultimate goal of the program is to reduce aggressive and oppositional behavior by correcting faulty social-information processing. During 11 weekly sessions of 70- to 90-minutes (depending on the group size), children engage in a wide range of exercises, which all address one or more aspects of social cognition and social-information processing (see Table 1). The group sessions are supervised by two therapists who run the program, encourage the children to carry out the exercises, reinforce appropriate behavior, and help children to think up solutions for social problem situations. The group process is useful as it provides the opportunity to exchange experiences, to practice in real social situations, and to give feedback on each other's behavior. Children are also given homework assignments in which they have to register problematic social events and exercises of prosocial behavior and successful self-control. Before each session, they score and briefly discuss the frequencies of five aggressive and oppositional "target" behaviors during the past week. This is not only done to give the therapists an impression of how the problematic behavior evolves, but also to focus the children on the reason for which they participate in the program.

Procedure

In the current study, the social-cognitive intervention was carried out by two clinical psychology graduate students who had no prior experience with conducting such programs with school children. Each week, therapists were supervised by an experienced child psychologist. During this supervision, upcoming sessions were prepared and specific treatment issues were discussed. The program was run at school during regular classes. The assignment of the children to both intervention con-

TABLE 1. Treatment Aspects in the Social-Cognitive Intervention Program "Self-Control" and Examples of Exercises

<i>Stage in Crick and Dodge (1994) model</i>	<i>Targets of "Self-control" program</i>	<i>Examples of exercises</i>
1. Encoding	Learning to focus attention on dispositional information instead of focusing on situational information Learning to identify social cues that elicit aggression Learning to pay attention to all verbal/non-verbal social cues	Role play of social situations during which children have to pay attention to verbal and non-verbal cues Registering and analyzing aggressive and oppositional behavior by means of homework assignments
2. Interpretation	Learning to differentiate and compare feelings and intentions of yourself and of other.	Interpretation of pictures and vignettes depicting social situations
3. Goal clarification and construction	Learning to put oneself in someone else's position	Role play in which children alternately play the role of the aggressive/oppositional child and the role of the other
4. Response search	Learning to generate alternative responses and effective solutions for social problem situations	Role play of imaginary and real-life social problem situations
5. Response selection	Learning to consider the advantages and disadvantages of aggressive behavior and alternative responses	Group discussion on the basis of children's own examples of social problem situations
6. Enactment	Learning to control aggressive and oppositional behavior	Cue-exposure role play during which children are actually confronted with aggressive behavior of others

ditions (i.e., “Treatment–Waiting period” and “Waiting period–Treatment”) was determined by the city in which schools were situated.¹ That is, all participating children in Sittard ($n = 31$) were first treated with the social-cognitive program during phase 1, and then waited during phase 2, whereas children in Eindhoven ($n = 11$) started with a waiting period and then received treatment. The treatment sessions were planned in such a way that both phases lasted for three months. On the three assessment occasions (i.e., before phase 1, after phase 1, and after phase 2), parents and teachers were asked to complete questionnaires at home and to return them to the researchers by mail. Children were interviewed (SCST) and completed questionnaires individually in a separate room at school.

Data Analysis

To evaluate the effects of the social-cognitive intervention program, a series of 2 (intervention conditions: Treatment–Waiting period vs. Waiting period–Treatment) \times 3 (occasions: before phase 1 vs. after phase 1 vs. and after phase 2) analyses of variance (ANOVAs) was carried out, with the last factor being a repeated measure. These ANOVAs were followed up by post-hoc t -tests (with p -level set on 0.05/4, i.e., Bonferroni correction) in case of a significant main effect of occasions or a significant interaction effect of intervention condition and occasions. Of course, the finding of this interaction effect is most crucial in the present study as such an effect might signal a differential time pattern in levels of externalizing problems, strengths, difficulties, and social-cognitive skills across children in both conditions.

RESULTS

Treatment Effects

Table 2 presents means scores (and standard deviations) of various outcome measures on the three assessment occasions for both intervention conditions. The series of 2 (intervention conditions) \times 3 (occasions) ANOVAs yielded significant main effects of occasions for all outcome variables [$F_s \geq 5.11$, all $p_s < 0.05$], except for parent- and teacher-reported strengths (SDQ) [F_s being 0.69 and 1.00, respectively]. Most importantly, the crucial interaction effect of intervention conditions and occasions emerged for half of the variables, viz. SDQ-C

TABLE 2. Mean Scores (SDs) of Various Outcome Measures on the Three Assessment Occasions for the Two Intervention Conditions

	Treatment–Waiting period			Waiting period–Treatment			<i>F</i> [†]
	1	2	3	1	2	3	
<i>Child report</i>							
SDQ-C							
Difficulties	15.28 (4.85) _a	12.59 (4.96) _b	11.10 (5.00) _b	16.18 (4.31) _a	17.73 (4.76) _a	11.82 (5.08) _b	5.76**
Strengths	6.97 (1.72) _a	7.79 (1.90) _b	7.93 (1.77) _b	6.82 (1.89) _a	7.00 (2.00) _a	7.91 (1.30) _b	1.23
YSR							
Externalizing	11.86 (6.28) _a	9.21 (5.19) _b	8.41 (5.76) _b	13.91 (6.16) _a	15.73 (7.10) _a	10.45 (4.76) _b	5.63**
SCST							
Total score	87.31 (9.82) _a	99.69 (6.62) _b	100.52 (6.34) _b	88.73 (7.89) _a	95.45 (8.02) _b	104.55 (3.14) _b	5.30**
<i>Parent report</i>							
SDQ-P							
Difficulties	18.10 (6.85) _a	14.69 (5.91) _b	13.00 (6.33) _b	17.67 (4.42) _a	19.00 (5.24) _a	14.11 (3.18) _b	4.90*
Strengths	7.34 (2.18)	7.83 (1.89)	8.00 (2.05)	7.11 (2.26)	7.22 (1.64)	7.11 (1.27)	0.55
CBCL							
Externalizing	15.86 (9.16) _a	12.21 (8.44) _b	11.24 (8.35) _b	17.11 (9.27) _a	16.33 (8.51) _a	12.44 (8.32) _b	1.04
<i>Teacher report</i>							
SDQ-T							
Difficulties	19.20 (7.10) _a	15.10 (7.16) _b	15.47 (6.84) _b	24.55 (5.94) _a	22.27 (3.90) _a	19.73 (5.24) _b	2.00
Strengths	5.17 (2.32)	5.37 (2.57)	5.53 (2.45)	4.45 (1.57)	5.00 (1.89)	5.00 (1.84)	0.16
TRF							
Externalizing	19.80 (8.38) _a	15.23 (9.23) _b	16.90 (11.65) _b	33.45 (10.91) _a	32.55 (8.72) _a	27.45 (8.61) _b	5.84**

Notes. SDQ-C = Child version of the Strengths and Difficulties Questionnaire, YSR = Youth Self-Report, SCST = Social Cognition Skills Test, SDQ-P = Parent version of the Strengths and Difficulties Questionnaire, CBCL = Child Behavior Checklist, SDQ-T = Teacher version of the Strengths and Difficulties Questionnaire, TRF = Teacher Report Form. † The *F*-statistic pertains to the interaction effect of intervention condition and occasions.
* $p < 0.05$, ** $p < 0.01$. Different subscripts indicate significant change compared to previous assessment at $p < 0.05/4$ (Bonferroni correction). These comparisons were only made in case of a significant main effect of occasions or an interaction effect of intervention condition and occasions.

difficulties [$F = 5.76, p < 0.01$], YSR externalizing [$F = 5.63, p < 0.01$], SCST [$F = 5.30, p < 0.01$], SDQ-P difficulties [$F = 4.90, p < 0.05$], and TRF externalizing [$F = 5.84, p < 0.01$]. Post-hoc *t*-tests indeed demonstrated the expected differential time pattern: that is, significant treatment effects (i.e., reductions of difficulties and externalizing behavior problems and an increase of social-cognitive skills) were observed during phase 1 in the Treatment–Waiting period condition, whereas such effects were documented during phase 2 in the Waiting period–Treatment condition. Note further that this predicted pattern of results was also present for a number of other variables (i.e., SDQ-C strengths, CBCL externalizing, SDQ-T difficulties), although these effects were obviously not strong enough to result in a significant interaction effect. Altogether, these results indicate that the social-cognitive intervention program produced positive effects whereas the waiting period did not.

An additional finding was that, in the Treatment–Waiting period condition, scores on various measures remained relatively stable from the assessment after phase 1 to the assessment after phase 2. That is, within this condition, no significant change on outcome measures was observed between these assessments. This indicates that treatment results were largely maintained over a three-month follow-up period.

Effect Sizes

For variables for which a statistically significant pre- to post-intervention improvement was observed, Cohen's *d* was computed to get an impression of the effect sizes of these treatment effects. In the Treatment–Waiting period condition, effects sizes varied between 0.41 (CBCL externalizing) and 1.48 (SCST), with a mean effect size of 0.62, which is indicative for a moderate treatment effect. In the Waiting period–Treatment condition, effect sizes were between 0.46 (CBCL externalizing) and 1.49, with a mean of 0.85, which also reflects a moderate treatment effect.

Clinically Significant Changes

To determine whether the intervention had resulted in clinically significant improvement of behavior problems, clinical cut-off scores of the Achenbach questionnaires (YSR, CBCL, and TRF) were employed to study percentages of children scoring in the subclinical and clinical range. Results show that prior to the intervention 22.50% (YSR), 41.46% (CBCL), and 70.73% (TRF) of the children had a score higher

than the (sub)clinical cut-off point. After the intervention, the percentages had decreased to 10.00% (YSR), 21.95% (CBCL), and 60.98% (TRF), with the only significant change observed for the CBCL [McNemar test: $p < 0.01$].

Subjective Treatment Effects

More than half of the parents ($n = 23$; 54.76%) indicated that the behavior problems have (much) improved following the “Self-control” intervention, most other parents rated that there was no observable change in behavior problems ($n = 18$; 42.86%), whereas one parent (2.38%) indicated that behavior problems had become worse. Similar subjective ratings were obtained for parents’ ratings of changes in prosocial behavior: 21 parents (50.00%) noted that there was (much) more positive behavior of their child, 20 parents (47.62%) indicated that the level of positive behavior was about the same, while one parent (2.38%) reported that there was a reduction of positive behavior since the intervention program. Highly similar ratings were obtained from the teachers: 20 children (47.62%) reported as showing less behavior problems at school, whereas 21 children (50.00%) showed more positive behavior. According to the teachers, only one of the children displayed more behavior problems and less positive behavior after the “Self-control” program.

Relation Between Change in Social-Cognitive Skills and Reductions of Problems

The “Self-control” program is largely based on the assumption that a correction of information processing deficits and distortions (and hence an improvement of the social-cognitive skills) will result in a reduction of behavioral problems. To test this assumption, correlations were computed between SCST pre- to post-treatment difference scores and pre- to post-treatment difference scores on Achenbach and SDQ scales. The expected negative correlations emerged between SCST difference scores, on the one hand, and SDQ child report ($r = -0.30$, $p < 0.05$, one-tailed), SDQ teacher report ($r = -0.35$, $p < 0.05$, one-tailed), and YSR ($r = -0.25$, $p < 0.10$, one-tailed) difference scores, on the other hand. Although correlations were rather small, at least some support emerged for the idea that an increase of social cognitions was linked to a decrease of behavior problems.

DISCUSSION

The current study is a first attempt to examine the effects of the social-cognitive intervention program “Self-control” in behaviorally disturbed children in the school setting. The main results can be categorized as follows. First of all, the social-cognitive intervention yielded a significant reduction of behavior problems and an increase of social-cognitive skills as compared to a waiting list control condition. Second, a follow-up assessment of the children who were initially treated indicated that the intervention effects were retained over a three-month period. Third, some support was found for the theoretical underpinnings of the “Self-control” program (see Van Manen, 2001). That is, a greater increase in social-cognitive skills was to some extent, accompanied by a larger reduction of behavior problems.

While the present results can be taken as evidence for the efficacy of the social-cognitive intervention program, this finding should be qualified in various ways. First of all, the crucial interaction effect of intervention condition and occasions was only found for half of the treatment outcome variables. Although the post-hoc comparisons indicate that the expected pattern was also present for three further outcome variables, the findings were probably not strong enough to express themselves in a significant interaction effect. Second, effect sizes varied between 0.41 and 1.49, with an overall mean effect size of 0.74, which is indicative of a moderate treatment result. Third, in terms of clinical significance, it should be mentioned that the intervention yielded modest reductions of the number of children scoring in the (sub)clinical range of the Achenbach questionnaires. Fourth, subjective ratings of the intervention efficacy showed that only half of the parents and teachers observed improvements in children’s behavior. Several explanations can be put forward for the fact that treatment effects were, in general, “rather modest.” First of all, the sample size of the Waiting period–Treatment condition was small ($n = 11$) and it is conceivable that this had a negative impact on the statistical power in the ANOVAs. Second, it should be borne in mind that the sample consisted of children who displayed problematic behavior in the schools. It is important to note, for example, that, according to the parents, more than 50% of these children scored within the normal range of a standardized questionnaire assessing behavior problems (i.e., CBCL externalizing). Clearly, there would have been more room for improvement in children who consistently displayed higher levels of behavioral problems in various settings. Third, the intervention merely focused on the children. While it is assumed that aberrant social information processing

plays an important role in disruptive behaviors of children (Crick & Dodge, 1994), it is also clear that environmental factors such as parental rearing behaviors (e.g., reinforcement, modeling, lack of discipline) play crucial roles in the etiology and maintenance of these problems (Loeber et al., 2000). For this reason, it has been recommended that an effective intervention for children with aggressive and oppositional behaviors should at least include a parent training which aims at teaching parents to deal more adequately with the difficult behaviors of their child. There are a number of such parent training programs, which have demonstrated good efficacy in the treatment of children with disruptive problems (see for a review, Kazdin, 1997).

Crick and Dodge's (1994) social information processing theory assumes that children demonstrate aggressive and disruptive behaviors precisely because they display distortions and deficits in their information processing. On the basis of this assumption, one would predict that children who show the most substantial treatment effects on social-cognition skills also exhibit the greatest reductions in their behavior problems. Although some support was found for this prediction, it should also be admitted that the (negative) association between an improvement in social cognition and a decline of behavior problems was weak and only found for some of the outcome variables. One explanation for not finding a more substantial link may be the aforementioned fact that we studied a non-clinical population of children who did not display extremely high levels of behavior problems and exhibited fairly normal levels of social cognitions (cf. Van Manen et al., 2001). Another explanation might be that the SCST is more a test of social development, and less suitable for assessing the typical deficits and distortions of behaviorally disturbed children in response to social situations.

Besides the aforementioned limitations, the present study suffers from a number of other shortcomings such as the non-random distribution of the children across both intervention conditions and the lack of a diagnostic interview instrument for assessing DSM-defined disruptive disorders. Nevertheless, the results seem to indicate that the social-cognitive intervention "Self-control" is a useful program for the early tackling of behavior problems in the school setting.

NOTE

1. The rationale behind this non-random assignment was practical: the geographical distance between the two cities (Sittard and Eindhoven) is about 70 kilometers and so it was not possible for the two therapists to travel back and forth between the schools in both cities.

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