

The effect of manualized behavior therapy with disruptive behavior disordered children in everyday clinical practice: A randomized clinical trial

Het effect van een geprotocolleerde gedragstherapie bij kinderen
met gedragsstoornissen in de alledaagse klinische praktijk:
Een gerandomiseerd klinisch onderzoek

(met een samenvatting in het Nederlands)

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Contents

Preface		7
1	Effective treatments of school-aged disruptive behavior disordered children: A clinical review	9
2	Research questions, design and methods	15
3	Additional information on the psychometric characteristics of some of the methods used	39
4	The experimental treatment: The Utrecht Coping Power Program	51
5	Descriptives and pre-posttreatment effectiveness analyses	59
6	Moderating and mediating factors	71
7	Cortisol and treatment effect in DBD children	79
8	Six-months follow-up effectiveness analyses	83
9	Additional analyses concerning intervention methods, therapists and cost-effectiveness	91
10	Summary of results and general discussion	97
Summary		105
Samenvatting		109
References		113
Appendices		121
Dankwoord		147
Curriculum Vitae		151

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Preface

This thesis starts with a review of effective psychotherapeutic treatments of school-aged children with Disruptive Behavior Disorders (DBD) in chapter 1. On the basis of this clinical review we formulated the aim of our effect study, i.e., to conduct a randomized clinical trial with referred DBD children in everyday clinical practice. For this, we used two methods that have been proven to be efficacious in the treatment of DBD children in research conditions: parent management training and social problem-solving skills training. The research questions, the design and the methods used are described in chapter 2 and 3. In chapter 4 we describe the psychotherapeutic program which we used: the Utrecht Coping Power Program, which is an adaptation of the Coping Power Program of Lochman and Wells (1996). In the following chapters the results of the study are presented. In chapter 5 we report on pretreatment to posttreatment effects. Chapter 6 reports on the mediating factors through which the treatment works, and moderating factors influencing the treatment effect. In addition, in chapter 7, the potentially relevant moderating role of the biological factor cortisol is addressed. In chapter 8 pretreatment to 6-months follow-up results are addressed. In chapter 9 we give a comparison of the costs of the treatments that have been investigated. The summary of the results and the general discussion are presented in chapter 10.

Effective treatments of school-aged disruptive behavior disordered children: A clinical review

1.1 Introduction

'Conduct disorder' refers to antisocial behavior that is clinically significant and clearly beyond the realm of normal functioning. The term refers to instances when children show a pattern of antisocial behavior with significant impairment of everyday functioning at home or at school, or where behavior is regarded as unmanageable by significant others (Kazdin, 1995). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 1994) draws a distinction between Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). The essential features of ODD are a pattern of negativistic, hostile, defiant behavior toward authority figures, while the essential features of CD are a pattern of behavior which violates the basic rights of others and major age-appropriate norms and rules. ODD can be seen as a milder and earlier variant of CD. The prevalence of ODD and CD is variably related to age, gender, socio-economic status, neighborhood, and degree of urbanization, but overall prevalence of ODD is 3.2 % and of CD 2 % (Lahey, Miller, Gordon & Riley, 1999). In school-age children ODD and CD are highly interrelated (Lahey, Loeber, Quay, Frick & Grimm, 1992). Recently, the term Disruptive Behavior Disorder (DBD; American Psychiatric Association, 1994) including both categories has been introduced. Besides the short term consequences like low level of educational attainment and peer rejection, children with DBD are at high risk for criminal behavior and the development of psychiatric disorders, such as antisocial personality disorder and substance abuse (Kazdin, 1995). Thus, DBD has a relatively poor long-term prognosis (Offord & Bennett, 1994).

ODD and CD are the predominant juvenile disorders seen in mental health and community clinics, accounting for between one third and one half of all clinic referrals (Kazdin, 1995). During the 1950s and 1960s, the possibility of useful treatment was viewed pessimistically (Rutter, 1998), but more recently there have been advances in behaviorally oriented approaches to treatment (Kazdin, 1997a). There now seems reason for some optimism. As Rutter (1998) puts it: "At least, there is something positive to build on". Yet, because it is still unclear to what extent these psychiatric disorders can be positively influenced, conduct problems remain an area of challenge.

Below we review the meta-analytical and other relevant studies of treating school-aged DBD children (section 1.2). Special attention is given to the question of whether the results of studies in research conditions are representative for the outcome in everyday clinical practice (section 1.3). We then discuss the aim of our study.

1.2 Reviews of treatment of DBD children

Brestan and Eyberg's (1998) review of psychosocial treatments of DBD children and adolescents spanned the years from 1966 to 1995. The authors identified 82 outcome studies of treatment for conduct problem children and then applied the methodological criteria for 'well-established' and 'probably efficacious' treatments defined by the Division 12 (i.e.,

Division of Clinical Psychology of the American Psychological Association) Task Force on Effective Psychosocial Interventions: A Lifespan Perspective. The criteria for 'well-established' were: use of a treatment manual, clear specification of the participant characteristics, replication by an independent research team and a good between-group design (i.e., use of a comparison group, random assignment to groups and use of reliable measures). The criterion for 'probably efficacious' treatment was that at least two studies showed the treatment to be more efficacious than a waiting-list control condition. After applying these methodological criteria, 29 studies remained. Two treatments were identified as 'well established': parent training programs based on Patterson and Gullion's (1968) manual *Living with children* and videotape modeling parent training (Webster-Stratton, 1984). Ten treatments were judged as 'probably efficacious'. Two of these ten were suitable for school-aged children: problem-solving skills training (Kazdin, Esveltd-Dawson, French & Unis, 1987a; Kazdin, Esveltd-Dawson, French & Unis, 1987b; Kazdin, Siegel & Bass, 1992) and anger coping therapy (Lochman, Lampron, Gemner, Harris & Wyckoff, 1989a). Both these methods (focusing on the relation between cognition and behavior in children) and the parent training programs were labeled as 'promising' for treating school-aged DBD children in several other reviews (Kazdin, 1997a; Kazdin, 2000a; Kazdin & Weisz, 1998). Meta-analytical studies of parent (management) training by Serketich and Dumas (1996) and of cognitive-behavioral therapy by Bennett and Gibbons (2000), confirm that these interventions affect DBD in children positively. We will now describe these methods in more detail.

Parent (management) training (PMT)

Parent (management) training programs are based on a model in which social interactional processes between parent and child are thought to play a role in the persistence of antisocial behavior (Patterson, 1982; Patterson, Reid & Dishion, 1992). The main impetus for the development of PMT has been the development of behavior modification techniques, particularly those based on operant conditioning such as contingency management (Kazdin, 1978; Mathys, 1997). PMT programs focus on teaching parents how to promote desirable, prosocial behaviors in their child while at the same time applying discipline to minimize undesirable, maladaptive behavior. PMT programs aim to teach parents to alter the reinforcement contingencies that support the child's antisocial behavior. For example, in Barkley's (1997) program parents are taught skills directed toward improving child compliance (e.g., they are instructed to respond contingently to the child with praise as soon as the child begins to comply). Parents are also trained to use time-out as a punishment for selected child misbehaviors.

Strengths and weaknesses

Serketich and Dumas (1996) conducted a meta-analysis on the outcome of behavioral PMT on antisocial behavior in children. Based on 26 studies the mean effect size was 0.86, which is large. Very few studies in the meta-analysis compared PMT with a different intervention. Thus, the results of the meta-analysis largely provide support for the positive outcomes of PMT compared to no intervention. No conclusions can be drawn as to whether PMT is superior to other treatment methods. It appears that the effects of parent management training generalize to other settings such as classroom behaviors and parents' personal adjustment (Serketich & Dumas, 1996). Long-term outcomes of PMT are scarce, but there are indications that the effects persist (Kazdin et al., 1987b; Long, Forehand, Wierson & Morgan, 1994).

There seem to be a number of factors beyond the immediate parent-child relationship that have been shown to moderate outcome, most notably parent characteristics and family circumstances: e.g., family socio-economic disadvantage, marital discord, high parental stress, low social support, single-parent families and parent history of antisocial behavior

(Kazdin, 1997b; Offord & Bennett, 1994). Families characterized by these multiple risk factors are less likely to remain in treatment, show fewer gains, and are less likely to maintain treatment gains (Kazdin, 1997b). Child characteristics, e.g., more severe or chronic antisocial behavior and comorbidity, predict reduced responsiveness to treatment (Kazdin, 1997b). Characteristics of treatment also contribute to outcome. A longer treatment and more therapist expertise (training and skill) have been shown to influence treatment outcome positively (Kazdin, 1997a).

Cognitive-behavioral therapy (CBT)

Cognitive-behavioral strategies focus on the deviant cognitive processing of events by DBD children. According to social information-processing models based on problem-solving models and cognitive theories of information processing (Crick & Dodge, 1994), children engage in various mental steps before enacting competent or incompetent (e.g., antisocial) behaviors when faced with social situational cues. These steps include encoding situational cues, interpretation and representation of these cues, clarification and selection of a goal, response access or construction, response decision, and behavioral enactment. Various studies have demonstrated DBD children's characteristic perceptions of their environment and social problem-solving skills (Lochman, Meyer, Rabiner & White, 1991; Matthys & Van Engeland, 1992). For example, aggressive children have been found to differ from nonaggressive peers in that they attend to fewer social cues (Matthys, Cuperus & Van Engeland, 1999), and direct their attention selectively toward hostile social cues (Gouze, 1987), thus enhancing the likelihood that they will interpret stimuli in a hostile way (Dodge & Frame, 1982). For social problems, DBD children generate fewer solutions than normal controls (Matthys et al., 1999). In evaluating possible solutions, aggressive children are more confident than nonaggressive children that aggression will produce tangible reward and will reduce aversive treatment by others (Perry, Perry & Rasmussen, 1986). Moreover, DBD children are more confident in their ability to enact an aggressive response, and select an aggressive response from various types of responses more often than normal controls (Matthys et al., 1999). Cognitive behavioral methods target these and other social cognitive dysfunctions. Children learn and practice, either in small groups or individually, to identify and adequately solve social problems, and to identify and control their feelings of anger.

Strengths and weaknesses

Bennett and Gibbons (2000) reviewed the outcomes of child cognitive-behavioral interventions for antisocial behavior based on 30 studies, including cognitive social problem-solving skills training (e.g., Kazdin et al., 1987a) and anger coping training (Lochman, Lampron, Burch & Curry, 1985; Lochman et al., 1989a). The mean effect size was 0.48 (weighted 0.23) at posttreatment and 0.66 (weighted 0.51) at follow-up, though relatively few (i.e., twelve) studies included follow-up data. Hence, child-based CBT interventions seem to have a small to moderate effect in decreasing antisocial behavior.

Bennett and Gibbons (2000) found a trend for a positive relationship between children's age and effect size, indicating that CBT may have a larger effect with older school-aged children and adolescents than with younger school-aged children. Other characteristics of children and their families that might influence outcome have not been extensively explored (Kazdin, 2000a; Kazdin & Weisz, 1998). Some studies on CBT report evident gains up to 1 year after treatment (Kazdin et al., 1992), others found that gains did not persist (Kendall, Reber, McLeer, Epps & Ronan, 1990). Thus, treatment outcome in the long run is questionable and deserves more attention in the future.

The above indicates that the outcomes of cognitive behavioral interventions for children with antisocial behavior appear to be smaller than the outcomes of PMT. Since DBD is

multidetermined (i.e., by both family and child factors) and manifests itself in various domains (e.g., interactions with parents and with peers), no single treatment may be sufficient. Consequently, efforts have been made to combine one type of treatment with other methods. Combining PMT with cognitively based problem-solving skills training (PSST, for the child) indeed appeared to induce more positive changes than PMT or PSST alone: Kazdin et al. (1992) found more marked and durable changes in children's antisocial and prosocial behavior and greater changes in parent dysfunctioning (e.g., parental stress, depression). For DBD children, CBT approaches appear useful as one part of a multi-modal approach (i.e., in combination with PMT and/or medication) (Southam-Gerow & Kendall, 2000; Webster-Stratton & Hammond, 1997).

1.3 Differences between outcome studies in research conditions and in clinical practice

Most outcome studies of child and adolescent psychotherapy are conducted under 'research conditions'. This influences our current knowledge about the effect of treatment, as there are several important differences between psychotherapy under research conditions and in everyday clinical practice (Weisz, Weiss, Donenberg & Han, 1995). In research therapy the clients are recruited at schools or through advertisement in newspapers, whereas the patients in clinic therapy are referred or are seeking help. The psychopathology of the study volunteers is less severe and complex (e.g., less comorbidity), than that of the patients. Research therapy is conducted in research settings (e.g., a university lab or a school), whereas clinic therapy takes place in service-oriented clinics or clinical agencies. The recruited clients are treated by specifically trained research-assistants with small therapist caseloads, whereas referred patients are treated by clinicians with large caseloads. Research therapy is more structured (treatment manuals) and uses more behavioral interventions than eclectic clinic therapy. This constellation of differences raises the question of whether the results of lab-oriented *efficacy* studies are representative of the *effectiveness* in everyday clinical practice. Here, the distinction that is often made between 'efficacy' and 'effectiveness' becomes relevant. Efficacy usually refers to treatments evaluated in lab-oriented studies whereas effectiveness refers to the treatments evaluated in everyday clinical practice.

When we look at the effectiveness of treating children for diverse disorders in everyday clinical practice, we find that outcome research on the treatment of children in the 'real world' is scarce. Weisz et al. (1995) conducted a meta-analysis of clinic therapy outcome studies, finding only 9 studies of clinic therapy, with a mean ES of 0.01 (ranging from -0.40 to 0.29). The results of a recent effectiveness study of clinic psychotherapy for various disorders (Weiss, Catron, Harris & Phung, 1999) were in line with the meta-analysis: the effect size was -0.08. It appears therefore that psychotherapy in everyday clinical practice is not effective. Clinical practice obviously differs from research practice in terms of effectiveness.

Over several years there has been a growing interest in bridging the gap between research therapy and clinic therapy (e.g., Graham, 2000; Harrington, 2000; Kazdin, 2000b; Weisz et al., 1995). Weisz (2000a, 2000b) recently stated that the gap between lab and clinic, mentioned by him and his colleagues in 1995 (Weisz et al.), had been underestimated and is larger than previously thought. He therefore suggested (Weisz, 2000b) employing a new research strategy (i.e., the Clinic-Based Treatment Development Model), in which the development and testing processes are moved into clinical practice at an early stage, instead of being the final step in a long series of efficacy experiments. We believe that the new research model suggested by Weisz (2000b) would demand an immense investment, whereas with respect to the treatment of DBD children, there are other, less rigorous ways of bringing clinical and research practice together. Since the treatment of DBD children has a long research history on treatment development, it would be a waste of time to start all over again.

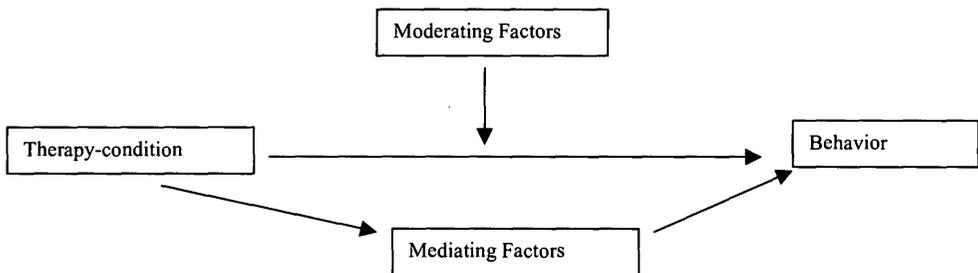
For example, there are already several studies that seem lab-oriented but have been carried out among children (and their families) with features of DBD patients (Serketich & Dumas, 1996). Moreover, at some universities in the United States, for example the Yale Conduct Clinic run by Kazdin, outcome studies are conducted with parents and their children seeking help because of the severe problem behaviors of their child. This so called 'University Lab Clinic Model' (Weisz & Weersing, 1999) allows treatments to be tested under experimentally precise conditions but with samples of children much like those usually referred to clinics (e.g., the study of Kazdin and Wassell, 2000).

1.4 Aim of present study

Based on the already available knowledge with regard to treatment outcome with DBD school-aged children, and being aware of the gap between clinical and research practices, we wanted to find out whether the combination of two behavioral methods (i.e., parent management training and social problem-solving skills training for children) that has been proven efficacious in the treatment of DBD children in so-called research conditions (research therapy), is also effective in everyday clinical practice (clinic therapy) (Weisz et al, 1995). For the combination of these two methods we used a translated and adjusted version of the Coping Power Program (Lochman & Wells, 1996), hereafter referred to as the Utrecht Coping Power Program (UCPP; for the content see chapter 4). To study the effectiveness of this combination of methods, we compared two treatment conditions: the UCPP-condition versus an active control condition (C-condition; see chapter 2, section 2.3.2). In the UCPP-condition, referred patients were treated by specifically trained research-assistants, who used a detailed manual. In the C-condition, the referred patients were treated by clinicians using their familiar method (e.g., family therapy, parental guidance) with their usual caseload.

Our aim was to study the effect of treatment (per condition) on the disruptive and prosocial behavior of the child, with clinically referred children. Besides studying the effect in terms of statistically significant differences and effect sizes, we also studied improvements in terms of the reduction of problematic behaviors and/or the increase in prosocial behavior to normative levels (i.e., clinical significance). Moreover, we wanted to investigate whether certain child and parental features would influence (i.e., moderate) the outcome, and we wanted to investigate the processes or mechanisms that might be responsible for (i.e., mediate) therapeutic change. These aims are presented in Figure 1.1.

Figure 1.1 Effect study model



Finally, we wanted to address a more practical issue related to the implementation of the treatment, i.e., the costs of treatment. These costs partially consist of 'patient-related' costs (e.g., time of investment, taking hours off from work etc.), and partially of 'institution-related' costs (e.g., the salary of the therapist based on the number of years of experience, the number of contacts etc.). In our study we focused on this latter aspect.

Research questions, design and methods

2.1 Introduction

In the former chapter we discussed reviews, meta-analytical and other relevant outcome studies regarding the treatment of school-aged DBD children (i.e., children with oppositional defiant disorder or conduct disorder) (American Psychiatric Association, 1994). Meta-analytical studies of parent management training (PMT) and cognitive-behavioral therapy (CBT) for the child have demonstrated that these interventions positively affect conduct disorders in children. However, most studies involved in these meta-analyses include treatments that are conducted under research conditions. They are not representative of the effectiveness of treatment in everyday clinical practice. In everyday clinical practice, the following features of psychotherapy are important (Weisz et al., 1995): (a) the patients are referred or are seeking help, (b) the psychopathology of patients is severe and complex (e.g., comorbidity), (c) therapy takes place in service-oriented clinics or clinical agencies, (d) the patients are treated by clinicians with large caseloads, and (e) the clinical interventions are often eclectic and non-behaviorally. Under research conditions, in contrast: (a) the clients are recruited at schools or through advertisement in newspapers, (b) the psychopathology of the study volunteers is less severe and complex, (c) research therapy is conducted in research settings (e.g., an university lab or a school), (d) the recruited clients are treated by specifically trained research-assistants with small caseloads, and (e) research therapy is more structured (treatment manuals) and often behaviorally oriented.

From our review of the literature, we concluded that the outpatient treatment of DBD school-aged children is a challenge. On the one side, psychodynamic therapy and play therapy are still employed in clinical work, although none has been identified as even probably efficacious (Brestan & Eyberg, 1998; Kazdin, 2000a). On the other side, those behavior therapies of DBD children that appeared to be promising in research studies have scarcely been looked at in actual clinical practice (Weisz et al., 1995). We therefore wanted to evaluate a psychotherapeutic program for the treatment of DBD children in outpatient clinics. In this chapter, the research questions, design and the methods used are described.

2.2 Research questions

We formulated six research questions, set out below. The results (related to question 1 to 3) are presented in chapter 5 with regard to the pre- and posttreatment outcome, and in chapter 8 with regard to the pre- and 6-months follow-up outcome. Question 4 and 5 are addressed in chapter 6 and 7, and question 6 is addressed in chapter 9.

1. *What are the changes in primary and secondary outcome measures within each condition over time?*

We expected that, in both conditions, treatment decreases the disruptive behaviors of the children and increases the prosocial behaviors, because these changes are the primary goals of therapy. Following Kazdin (2000b), next to these primary outcome measures, we also studied the changes in secondary outcome measures (like subjective parenting stress) although they are not directly focused on in therapy.

2. *Is there a difference in the effectiveness of treatment between the UCPP-condition and the C-condition?*

On the basis of the literature (see chapter 1), especially with regard to the kind of treatment, we expected that the effectiveness of treatment in the UCPP-condition is greater than the effectiveness of treatment in the C-condition, since the UCPP-condition includes methods that have been proven to be efficacious in research practices.

3. *Is there a difference in the clinical significance of the treatment effect between the UCPP-condition and the C-condition?*

Following the expectation formulated with respect to research question 2, we expected that the clinical significance of the treatment effect in the UCPP-condition is larger than the clinical significance of the treatment effect in the C-condition.

4. *What is the influence of the moderators on the treatment effect?*

Based on the relevant literature (e.g., Bennett & Gibbons, 2000; Kazdin, 1997b; Kazdin & Crowley, 1997) we studied the influence of the following variables: the severity of the disruptive behavior at the start of treatment, age, intelligence, comorbidity with Attention Deficit Hyperactivity Disorder (ADHD), attention, and Psychoneuroticism of the mother and the father. On the basis of studies of our own research group among in-patient and day-treatment DBD children, we also studied the influence of hypothalamic-pituitary-adrenal (HPA) responsivity at baseline and under stress (measured by cortisol). As the influence of these characteristics of children and their families on treatment effect have not been extensively explored, we studied them exploratively.

5. *What is the influence of the mediators on the treatment effect?*

The change in parenting skills and the change in the child's social problem-solving skills were expected to mediate the change in outcome measures (treatment effect) in the UCPP-condition but not in the C-condition, because these factors are specifically addressed in the UCPP-condition.

6. *Is there a difference in the costs of treatment between the UCPP-condition and the C-condition?*

We expected that the costs of treatment in the UCPP-condition will be lower than the costs of treatment in the C-condition, because in the UCPP-condition relatively young and inexperienced therapists were used, and the treatment is given groupwise whereas the treatment in the C-condition is individualized.

2.3 Design

2.3.1 Selection criteria

Criteria for study entry (of respondents) were as follows: (a) the child should be between 8 and 12 years old at the start of the treatment; (b) the child should be living within a family; (c) the child should meet the criteria for DBD in accordance with the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV: American Psychiatric Association, 1994), whereas comorbidity with other disorders is allowed; (d) the child's intelligence should be at least 80 based on the results of two subtests (Vocabulary and Block Design) of the Wechsler Intelligence Scale for Children-Revised (WISC-RN: Wechsler, 1974, Vandersteene et al., 1986); and (e) outpatient care should be feasible according to the judgement of the child psychiatrist responsible for the assessment of the child.

Diagnoses of the subjects at the outpatient clinics were based on extensive semi-structured psychiatric interviews, psychological assessment of the child, interviews with the parents including discussion of the developmental history, and standardized information from the child's teacher. On the basis of this information a clinical diagnosis was made, often as a consensus between the resident child psychiatrist and a board-certified supervisory child psychiatrist during case discussions focused particularly on DSM-IV criteria for the various childhood disorders. This final clinical diagnosis was checked with the parent version of the DISC 2.3 (Fisher, Wicks, Shaffer, Piacentini & Lapkin, 1992: Dutch translation by Kasius, 1997). Since in school-age children ODD and CD are highly interrelated (Lahey et al., 1992), no distinction was made between subjects who fulfil the criteria for one or both of these categories. In this thesis the term Disruptive Behavior Disorder (DBD; American Psychiatric Association, 1994) is used including both categories.

2.3.2 Treatment conditions

1. Experimental Condition: *Utrecht Coping Power Program (UCPP-condition)*.

The experimental condition consisted of the Utrecht Coping Power Program (UCPP): a combination of a cognitive-behavioral group training for children and a group training of parenting skills for parents. Both (manualized) treatments were based on Lochman and Wells' Coping Power Program (see Lochman & Wells, 1996). Translation, adjustments, omissions and expansions were conducted to adjust the Program for the treatment of DBD children in the Netherlands. Groups of four children came to the outpatient clinic weekly for 23 sessions of 75 minutes. The parents of each group of children (numbers of parents ranging from 4 to 8) came for training once every two weeks. They participated in 15 sessions of 90 minutes. (For a more detailed description of the UCPP see chapter 4.) Pharmacotherapy for the treatment of comorbidity was allowed.

2. Control Condition: *Care as Usual (C-condition)*.

As control condition, a Care as Usual condition was chosen. This was an active control condition: subjects were provided with mental health services typically offered in the outpatient clinics (family therapy, psychoanalytic psychotherapy, play therapy, individual behavior therapy, sometimes in combination with pharmacotherapy etc.).

Both conditions differed at least with respect to some previously known features. The UCPP-condition was a manualized treatment: every topic had its fixed time and order, daily problems of the parents and/or the children were not dealt with on an individual basis. The Care as Usual condition was more individualized and flexible, and carried out by more experienced therapists compared with the inexperienced, but specifically trained therapists in the UCPP-condition. Moreover, the period of treatment in the UCPP-condition lasted nine months, whereas the period of treatment in the C-condition had no specific and previously determined ending (i.e., this ending of treatment could be long before the second assessment, or could still be running at posttreatment).

2.3.2.1 Active control condition

Effect studies need to be conducted with a randomly assigned control condition. There are two types of control conditions: passive and active control conditions. Using passive control groups (e.g., no-treatment, placebo-attention condition) guarantees that the observed effects (comparing both conditions) are due to the single treatment under study and not to confounding factors such as the passage of time, effects of psychological assessment or placebo-effects (e.g., Brestan & Eyberg, 1998), whereas the use of an active control condition gives insight in the difference between two treatments. In clinical practice, however, it would be ethically unacceptable to leave (half of) the problematic families untreated for a relatively long time (Weiss et al., 1999); in the present study they would remain untreated for at least 9 months. Furthermore, no-treatment and placebo-conditions do not provide outcome

information especially applicable to a clinical setting; that is, they do not represent what typically happens to subjects who seek treatment but are not provided with it. As to a waitinglist condition, if the problem is severe and chronic enough individuals often go elsewhere to obtain meaningful treatment (Clarke, 1995). On the basis of these two arguments, we choose an active 'Care as Usual' control condition. In this active control condition, subjects were provided with mental health services typically offered in the service setting. This design is called a comparative outcome study design (for relative advantages and disadvantages, see Kazdin, 1986; we described some limitations in section 2.3.5.). Clarke (1995) observed that one most important benefit of an active 'Care as Usual' control condition is that it represents a more generalizable test of the intervention. It has the greatest ecological validity of all common control conditions, with the greatest likelihood of corresponding to a real-world counterpart. Moreover, this comparative treatment design is more likely to be tolerated in clinical settings and to overcome clinic staff resistance (Weisz, Weiss & Donenberg, 1992).

2.3.2.2 Pre-randomization

In order to minimize differences in independent variables between both conditions at pretreatment, random assignment to groups is statistically preferable. In a conventionally conducted randomized clinical trial, random assignment to treatment does not take place until it has been demonstrated that the patient meets all the inclusion criteria, has had the details of the study explained, and has then agreed to participate. A modification of this randomization procedure is the so-called pre-randomization procedure (Zelen, 1981). This design was proposed for studies that compare 'standard therapy' to an experimental treatment but make the randomization procedure more comfortable for both clinicians and patients. For clinicians, it is easier to discuss the study with the patient and obtain informed consent after the random assignment because, in this way, he/she is able to tell what treatment should be administered. For patients, it is easier to decide whether they want to participate or not, once they know what is the assigned treatment. Thus, it is expected that more patients will be approached to participate by the clinicians, and more patients will agree to participate. Zelen (1981) discussed two variations of this design: a single consent randomized study (in which only the patients who are pre-randomized to the experimental-therapy arm will learn that they are participating in a study and will be required to give their informed consent) and a double consent randomized study (in which patients on both study arms are informed and asked consent to accept the randomized treatment). This latter variant of the design is suitable for comparing two treatments in which there is no control or best standard treatment (Zelen, 1981). Moreover, it seems to be ethically and legally preferable (i.e., everyone knows that they are study patients, rather than only half the patients), but this double consent randomized design also raises several scientific, ethical and practical concerns (Ellenberg, 1984). The most prominent scientific concern is the fact that on both arms there will be patients who will refuse the (assigned) treatment and will get the treatment of the other arm. If they are studied as randomized, this will dilute the treatment effect and requires more patients (a practical concern) in the study design to resolve this problem of dilution. If they are studied as treated, this can also give misleading results. The ethical concern relates to the manner in which patients are informed about the study, which may be affected by the treatment assignment.

We therefore decided to use a variant of this design: a pre-randomized, single blind design, in which the patient does not know the identity of the treatment (i.e., is 'blind') whereas the clinician does know the identity of the treatment (i.e., experimental or regular). After ascertaining eligibility and random assignment, the families were given consultation. First they were informed of the diagnosis and the necessity of treating this disorder. They were then invited to participate in this study. The clinician introduced the study as an effect study on the treatment of DBD children in general (i.e., they were not told that the study compared two conditions of which one condition consisted of an experimental treatment). It was

justifiable not to report about the experimental character of one of the arms in the study, since a best standard method on the treatment of DBD children in the clinical practice has not so far been proven. The patients were asked about their willingness to participate in the study, not about their willingness to accept a (assigned) treatment, as in the 'usual' pre-randomization design. After their decision as to whether or not to participate in the study, they were told about the specific treatment (see Figure 2.1). By using this pre-randomized, single-blind design we hoped to reduce the risk that families would not participate and that we would study only a selected group of families (i.e., only those that are willing to receive an experimental treatment). The ethical committee of the University Medical Center Utrecht approved this study.

We expected that some proportion of the pre-randomized patients on each arm of the study would refuse to participate in the study, but we did believe that the 'refusers' in both arms of the study would be comparable with each other, since all such refusals would precede any knowledge of which treatment was to be offered (see also chapter 5).

Because of randomization, the final distributions of both treatments on possible (known or unknown) nuisance variables were assumed to be equally balanced, especially since we used a relatively large sample ($N = 77$; Hsu, 1989). However, in order to be absolutely sure that the two conditions were similar and comparable on two well known 'nuisance' variables (i.e., sex and comorbidity with ADHD), halfway through the recruitment of the study-subjects we decided to make a stratification in the assignment, on the base of sex and presence/absence of comorbidity with ADHD.

2.3.3 Assessment

The effect-study had three moments of assessment: measures that reflected the domains of interest were administered shortly before the start of the treatment (pretreatment), nine months later (posttreatment), and six months after posttreatment (6-months follow-up) (see Table 2.1). Each time we used the same procedure. The parent(s) completed the questionnaires at home, they themselves asked their child's teacher to fill in a teacher questionnaire, and a trained psychologist in the outpatient clinic executed the psychological assessment of the child.

We choose for these two time periods on the basis of the UCPP-condition: from pretreatment to posttreatment the UCPP was conducted and ended. Thereafter we wanted to see whether the changes that were accomplished would stick after six months. For the C-condition we used the same time periods although the duration of treatment could be different: ended earlier than nine months after the start of treatment or still continuing at the moment of postttreatment.

Table 2.1 Study design

	Pre-treatment	NINE MONTHS Treatment intervention	Post-Treatment	SIX MONTHS (Care as Usual)	6-months follow-up
UCPP-condition	X	Utrecht Coping Power Program	X		X
C-condition	X	Care as Usual	X		X

2.3.4. Intention to treat

In the present study, all families who began treatment and attended at least once were included, regardless of whether they finished the treatment or not. We wanted to study the effect of treatment, with families who agreed with the child psychiatrist to start treatment on an outpatient basis. We realized that studying the effect of treatment by using the model of

'intention to treat' (and not the model of treatment-completers) could reduce the effect of treatment. By including these dropouts we wanted to increase correspondence with clinical practice (see chapter 5).

2.3.5 Limitations to the design

By using this design we would not be able to tell *whether there is a placebo-effect or not*.

A placebo-effect accounts for the effects resulting from participation in a 'therapy' and the expectations for improvement that the participation in itself engenders. Even if, on theoretical grounds, treatment is not expected to work, clients are likely to improve. Improvement may result from merely coming to 'treatment', meeting with a therapist, and talking about one's problem. These general characteristics of the 'therapy' rather than other ingredients (e.g., exercising by parents with giving instructions) might already be responsible for change (Kazdin, 1980). Although we cannot study placebo-effects in the present study, we do know from other studies in in-patient settings that the combination of PMT and PSST for the child was more effective than a contact-control procedure (i.e., placebo contacts without 'real' treatment) (Kazdin et al., 1987b), and that the effect of a cognitive behavioral problem-solving skills training was also larger than the effect of a contact-control procedure (Kazdin et al., 1987a). Moreover, PMT studies show improvements, which surpass those of other treatments and control procedures (Kazdin, 1997b). All these findings led us to believe that the UCPP-condition at least surpasses a placebo condition. We tried to lend support to this idea by investigating whether our effects are related to the treatment-specific ingredients (i.e., the mediators).

By using this design we will not be able to tell *how referred children would develop without treatment: do problem behaviors decrease over time, are they persistent or do they worsen?*

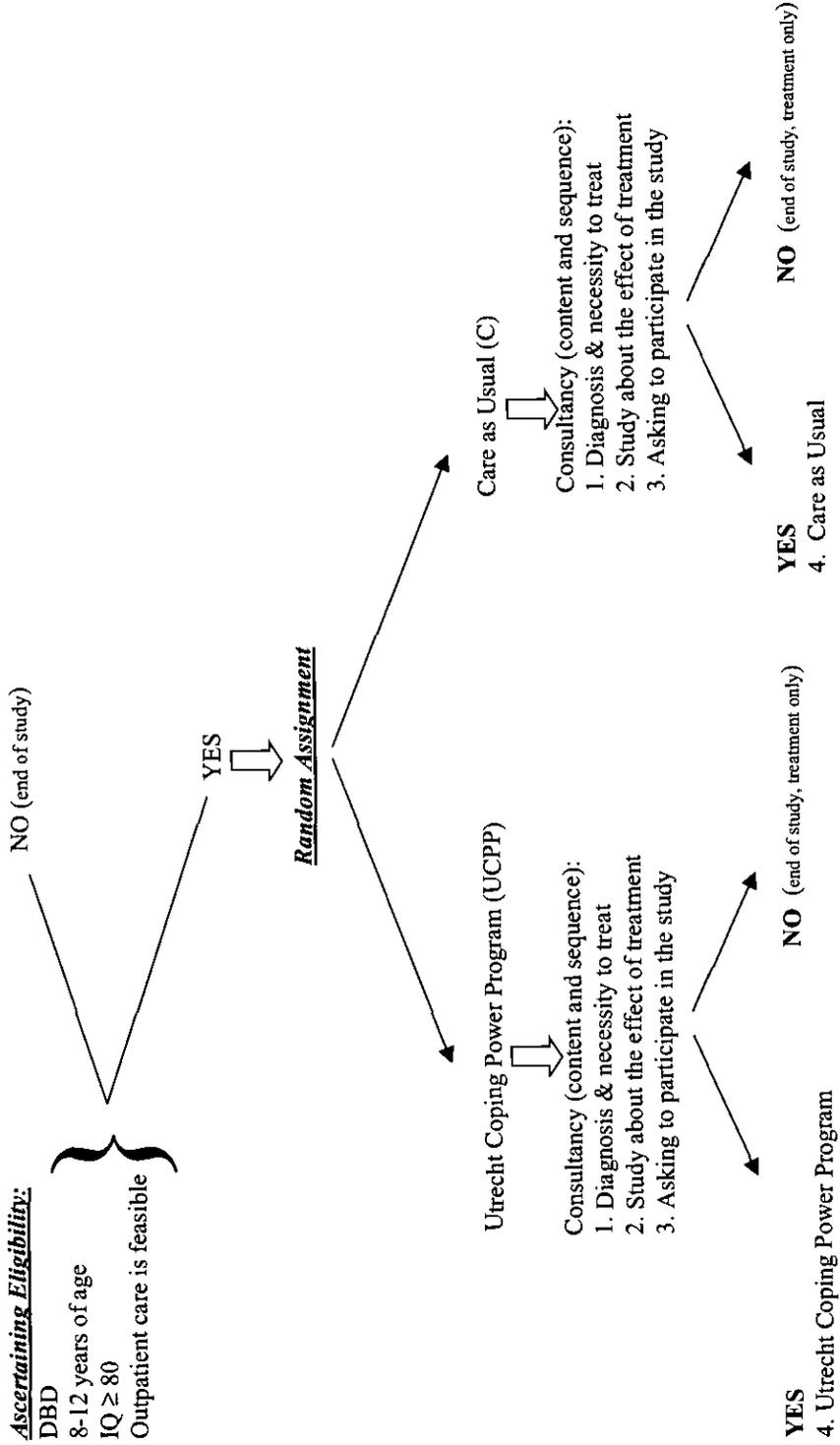
Tremblay (2000) found that the physically aggressive behavior of children in a community sample decreased over time, except for a small persistent highly externalizing problem group. In the same context, a study of Angold, Costello, Burns, Erkanli and Farmer (2000) should be mentioned, in which four annual waves of data were collected in a community sample. They found that the children eventually referred were on a different trajectory, being less likely to show symptomatic improvement over time (in the period before treatment) than those who never received treatment. At the point at which they entered treatment, the children who were to get treatment had already shown substantial deterioration in symptoms, impairment, and the negative impact of their disorders on their parents (Angold et al., 2000). On the basis of these two studies we doubt whether the patients in our study would improve without treatment.

Our design implies that the *conditions may differ in whether children are treated between posttreatment and 6-months follow-up*. From posttreatment to 6-months follow-up in general in the UCPP condition, only very few subjects received treatment, whereas in the C-condition the treatment continued in many cases. Since the C-condition reflects a true everyday clinical practice situation (the reality), we think that the comparison is limited but most relevant.

Finally, some ethical concerns related to the pre-randomization procedure need to be considered as limitations of the design. The act of pre-randomization enrolled patients in a study before they had given consent. However, after this assignment, we asked them whether they wanted to participate or not, so that in this way we did respect the principle of voluntary participation in research efforts. Further, patients were informed about the study, but information about the design and about the experimental nature of the Utrecht Coping Power Program was withheld. One may question whether this is ethically acceptable or not. On the basis of information on the outcome of effect studies in the literature (see chapter 1) we thought it was. The argument that it is not fair to present the experimental condition (without telling about the experimental character) -because we are not sure about the effects- was

rejected because we also are unsure of the effects of the Care as Usual; yet we administer it daily: psychodynamic therapy and play therapy are still applied extensively in clinical work (Kazdin, Siegel & Bass, 1990), although neither has been identified as even probably efficacious (Brestan & Eyberg, 1998, Kazdin, 2000a). The contrary argument that it is not fair to withhold the experimental condition because it is a promising method was also rejected, since we are not sure about the effects of this treatment in everyday clinical practice (Weisz et al, 1995). Thus, although we did not allow patients access to all information, we think that the pre-randomization method used was ethically acceptable.

Figure 2.1 Pre-randomization Model



2.4 Measures and methods

We made use of multiple informants: parents, teachers and children. For children (under 12), especially with externalizing disorders, adults are considered the most knowledgeable informants. Parents have access to a broad and protracted sample of behaviors, and have a major role in clinical referral and treatment (Achenbach & Edelbrock, 1983). Because teachers can give information about the behavior of the child in another setting than the home, it is possible to study whether behavioral changes will be transferred to other settings. Moreover, teachers are more 'objective' informants because they are blind to the content of the therapy and do not participate in treatment. Pre-adolescent children are considered to be the least reliable informants with respect to their problem behavior (Loeber, Green, Lahey & Stouthamer-Loeber, 1991). However, using the children for assessment is considered the most direct way of studying changes in their cognitions.

Besides different sources of information, we used instruments with different time windows (see also chapter 3). We used the Parent Daily Report (PDR; Chamberlain & Reid, 1987) to assess the frequencies of problem behaviors (i.e., Overt Aggression and Oppositional Behaviors) in the past 24 hours (during two weeks). A questionnaire addressing specifically antisocial behaviors (i.e., Overt and Covert Antisocial) was added: the Interview for Antisocial Behavior (IAB) (Kazdin & Esveldt-Dawson, 1986). The IAB asks specifically about the present antisocial behaviors, whereas for a more general report on the child's externalizing behavior (including aggressive and delinquent behavior) we used the Child Behavior Checklist (CBCL; Achenbach, 1991a) and the Teacher Report Form (TRF; Achenbach, 1991a). Both questionnaires address a longer time period (respectively six and two months), and a broad range of behaviors (of which we used the Externalizing Behavior score).

We not only addressed the problem behavior of the child, but also the prosocial behavior of the child, by using the Matson Evaluation of Social Skills with Youngsters (Matson, Rotatori & Helsel, 1983). In addition to these primary outcome measures, we also expanded the range of possible areas of functioning that could be influenced by the treatment (the secondary outcome measures). We addressed family (dys)functioning by means of the Nijmegen Questionnaire on the Child-Rearing Situation (Wels & Robbroeckx, 1996), parental (dys)functioning by using the Symptom Checklist SCL-90 (Derogatis, 1975; Arrindell & Ettema, 1986) and we checked two specific items of a Life-events Checklist (viz, residential treatment and police contact), which we constructed ourselves.

These measures are discussed in the following section. We begin by discussing the primary and secondary outcome measures (used for studying research question 1, 2 and 3; see Table 2.2 and 2.3). We then present the measures related to the moderating factors (research question 4; Table 2.4) and thereafter the measures related to the mediating factors (research question 5; Table 2.5). Specifically, we present the reasons for using each instrument, followed by the available information on the instrument. Where little information is available about the Dutch version of the instrument, we examined the psychometric characteristics of the instrument as described in chapter 3.

2.4.1 Primary Outcome Measures

Table 2.2 Primary Outcome Measures

PRIMARY OUTCOME MEASURES:

** Measures of the child's disruptive behavior:*

- Information obtained from the parent:
Parent Daily Report (Chamberlain & Reid, 1987)
Interview for Antisocial behavior
(Kazdin & Esveldt-Dawson, 1986)
Child Behavior Checklist (Achenbach, 1991a)
- Information obtained from the teacher:
Teacher Report Form (Achenbach, 1991a)

** Measures of the child's prosocial behavior:*

- Information obtained from the parent:
Matson Evaluation of Social Skills with Youngsters
(Matson, et al., 1983)

2.4.1.1 Parent Daily Report

There are several ways of assessing parents' opinion of the problem behavior of their child. On the one hand, there is the more general (molar) assessment of problem behavior of the child (e.g., the CBCL, which asks about the past months), while on the other hand there is the more precise (molecular) assessment of direct behavioral observations. We wanted to assess the problem behavior of the child as specifically and momentarily as possible. Since direct observations in the home are time-consuming and have the limitation of not revealing the low base rate of severe problem behavior of the child, we assessed the more specific (molecular) problem behavior by the Parent Daily Report (PDR). This is a low-cost compromise between general parent reports and direct behavioral observations of the child.

The PDR checklist is a parental observation measure. The checklist consists of 34 items: 33 items refer to child problem behaviors and one item to the use of physical punishment by the parent (Chamberlain & Reid, 1987; see Appendix A). To administer the PDR, by a trained interviewer the parent is asked at each assessment to indicate which of the items refer to problems for the particular child (scoring *yes* or *no*). The parent is then told that she/he will be telephoned six times over a 2-week period and asked to indicate which, if any, of the 34 items actually occurred during the previous 24 hours. The parent is not asked to provide frequencies, only occurrence or non-occurrence.

The PDR has test-retest reliabilities ranging from .85 to .98 and an intercoder entry-by-entry agreement of 97.6% (Chamberlain & Reid, 1987). The PDR has been used in several (clinical) outcome studies (Patterson, 1982; Patterson, Chamberlain & Reid, 1982; Weinrott, Bauske & Patterson, 1979; Chamberlain & Reid, 1991; Conduct Problems Prevention Research Group, 1999) and the PDR scores have been shown to be sensitive to clinical interventions (Chamberlain & Reid, 1991; Kazdin et al., 1992).

Some studies used the 34 items, others either reduced (Kazdin et al., 1992) or extended this list (Webster-Stratton & Hammond, 1997). In research practice, scores have been generated in different ways: a Total Behavior Score as the sum of all problem behaviors that occurred on a given day; a Target Behavior Score as the sum of all occurrences of events previously identified by the parent as problematic; factor-based scores, i.e., scores based on cluster or factor analyses based on the 34 items (Chamberlain & Reid, 1987; Conduct Problems Prevention Research Group, 1999). The Conduct Problems Prevention Research Group is at

present conducting the Fast Track Project study using a scale construction of the PDR based on a principal component analysis with varimax rotation on normative sample data. Mason completed this analysis at the Seattle site. Five factors emerged (Conduct Problems Prevention Research Group, 1997). Based on a theoretical model, these five factors were adjusted to four subscales. The first subscale ($\alpha = .84$; based on the physical/verbal aggression factor) represents the construct of Overt Aggression. The second subscale, including the factor verbal negativism ($\alpha = .76$) together with the factor non-compliance ($\alpha = .72$), represents the construct of Oppositional Behavior. The third subscale ($\alpha = .76$; based on the factor activity/hyperactivity) represents the construct of Hyperactivity, and the fourth subscale ($\alpha = .53$; based on the sad/negative affect factor) represents the construct of Depression. Five items on the PDR had very low base rates and did not load on any of these factors. These five items (i.e., lies, police contact, firesetting, steals and runs away) represent the construct of Covert Antisocial Behaviors, and form together the fifth subscale (Lochman, personal communication 2000). On the basis of our own examination of the psychometric characteristics of the PDR (see chapter 3, section 3.2.1.1), we decided to use the factors *Overt Aggression* and *Oppositional Behavior* in our study.

2.4.1.2 Interview for Antisocial Behavior

The Interview for Antisocial Behavior (IAB), designed by Kazdin & Esveltd-Dawson (1986), is a questionnaire to be completed by parents to assess the antisocial behavior of their children (aged 6-13 years). We included this measure because the IAB specifically addresses the present antisocial behavior of children, in contrast to the more general problem behavior of the past months addressed by the CBCL.

The instrument includes 30 items that pertain to a broad range of aggressive and antisocial behaviors (see Appendix B). This broad range of behaviors is important because both severe antisocial behaviors and less severe problems may be presented by a particular child (e.g., stealing is accompanied by disobedience or arguing with others). Different dimensions of antisocial behavior are covered in the questionnaire: the overt (e.g., temper tantrum) and covert (e.g., firesetting) behaviors (Loeber & Schmalung, 1985). For each item, parents are asked to rate occurrence and severity on a 5-point scale (1 = *none at all*, 5 = *very much*). If the problem behavior occurs (rating >1), the duration of the problem is rated on a 3-point scale (1 = *recent or new problem (6 months or less)*, 2 = *long time (more than 6 months)*, 3 = *always*). Thus assessed, separate scores are available for severity and duration. Kazdin and Esveltd-Dawson (1986) suggested that a total antisocial behavior score (ranging from 30 to 240) across all items can be obtained by summing the severity and duration scores. Higher scores on all questions indicate more serious problematic behaviors. This total antisocial behavior score has been shown to have acceptable levels of internal consistency (i.e., coefficient alpha is .91) and to correlate significantly with other measures of aggression (Kazdin & Esveltd-Dawson, 1986). In addition, Kazdin and Esveltd-Dawson (1986) extracted three factors based on a principal component analysis with varimax rotation (see Appendix C). The first factor includes 17 items reflecting Arguing/Fighting/Overt Antisocial Behaviors. The second factor includes 10 items that reflect Covert Antisocial Behaviors. The third factor includes three items and was called Self-injury. The a priori scale scores (severity, duration and total) and the factor analytically derived scores (overt, covert and self-injury) distinguished DBD from non-DBD children (Kazdin & Esveltd-Dawson, 1986). This instrument has been used in several clinical research studies (Kazdin et al., 1992; Allen, Matthews & Kenyon, 2000). On the basis of our own examination of the psychometric characteristics of the IAB (see chapter 3, section 3.2.1.2), we decided to use the factors *Overt Antisocial Behavior* and *Covert Antisocial Behavior* in our study.

2.4.1.3 Child Behavior Checklist

The Child Behavior Checklist (CBCL; Achenbach, 1991a; Verhulst, Van der Ende & Koot, 1996) is a frequently used parental rating scale for assessing problem behavior in children. The CBCL has been designed for both clinical and research purposes (Achenbach & Edelbrock, 1983) and has been translated into 58 languages. We included this questionnaire in the study because it is a well-standardized and internationally well known instrument.

The checklist consists of two parts: the first part is the competence section, the second part is the problem section. The problem section includes 118 items; the rating period is the previous six months and each item is rated on a 3-point Likert scale, where 0 indicates responses of 'not true', 1 'somewhat or sometimes true', and 2 'very true or often true'. These items cover multiple symptom areas that have been derived through factor analyses completed separately for boys and girls in different age groups. Achenbach (1993) developed a cross-informant model that is similar for both sexes, has a large age range (4 to 18 years), and has versions for three informants (parent, teacher, and child). This model consists of eight (narrow band) syndromes: Withdrawn, Somatic, Anxious/Depressed, Social problems, Thought problems, Attention, Delinquent and Aggressive. Broad band groupings of internalizing and externalizing scales are used to reflect both inward directed (e.g., anxiety, depression) and outward directed (e.g., aggression, delinquency) problems. The total behavior score includes all items, some of which do not load on specific scales, and reflects overall severity of dysfunction.

The Dutch version of the CBCL has been shown to be applicable by a number of studies (Achenbach, Verhulst, Baron & Althaus, 1987; De Groot, Koot & Verhulst, 1994). However, the instrument has not often been used in intervention studies in the Netherlands (Verhulst et al., 1996). In our study we used the problem behavior section of the CBCL, not the social competence section. We decided to use only the externalizing broad band grouping scale (including delinquent and aggressive syndromes), and not the separate syndrome scores, because the PDR and IAB already provide a narrower focus in our study. Moreover, the construct validity of the narrow band syndromes of the CBCL is questioned (Hartman et al., 1999). On the basis of T-scores, children can be grouped into a non-clinical (T-score < 60), borderline (T-score 60-63) and clinical range (T-score > 63) of externalizing behavior. Looking at the stability of the externalizing scale of the instrument, we found that the correlations ranged from .62 after two years to .65 after 4 years (Evers, Van Vliet-Mulder & Groot, 2000). On the basis of theoretical questioning (e.g., the CBCL addresses the symptoms of children observed by the parents, but the parents may have a stable cognitive set of these behaviors and are not sensitive enough to report changes in these symptoms), we doubted whether the instrument is sensitive enough to detect changes in problem behaviors. We did use this instrument since it gives an opportunity to interpret the scores of our study subjects against the scores of normative samples (Verhulst et al., 1996).

2.4.1.4 Teacher's Report Form

A teacher report form of the CBCL (TRF) assesses problem behaviors as reported by the children's teacher (Achenbach, 1991a; Verhulst, Van der Ende & Koot, 1997). We included the TRF, to assess the child's externalizing behavior at school.

The problem section includes 118 items; each item is rated on a 3-point Likert scale, where 0 indicates responses of 'not true', 1 'somewhat or sometimes true', and 2 'very true or often true'. Teachers are asked to base their ratings on the previous two months, rather than the six-month period with the parents. In our study we used the broad band grouping of Externalizing Behavior of the behavior problem section of the TRF. Again, T-scores can be calculated to see whether the child functions in the non-clinical (T-score < 60), borderline (T-score 60-63) or clinical range (T-score > 63) of the externalizing scale.

2.4.1.5 Matson Evaluation of Social Skills with Youngsters

In recent years, there has been much more awareness of the need to broaden the outcome measures in effect studies. Besides assessing the antisocial behavior in treatment studies of DBD children, the prosocial behavior should be assessed as well (Kazdin, 2000b). Thus, we decided to use a measure related to prosocial behavior.

The Matson Evaluation of Social Skills with Youngsters (MESSY; Matson et al, 1983) is a well-researched social skills checklist for children (Matson & Ollendick, 1988). Initially, the scale contains 92 items. They were selected from various sources: general scales of psychopathology, behaviors targeted in social skills studies with children, and clinical observations and discussions with professionals who worked with children. The items pertain rather to specific behaviors than to particular settings such as the home or school. Therefore, the MESSY may have broad applicability. Respondents rate items on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*). Initially, there was a self-report version for the child and a teacher version. However, Matson (1990) suggested that the teacher version of the MESSY could also be used with parents.

Adult (Teacher/Parent) version

In the Matson et al. study (1983) Pearson correlations on test-retest were run on each item, decreasing the number of items to 64 items for the teacher version. They derived factors of the MESSY through varimax rotation procedure with the 64-item teacher report scale. The Appropriate Social Skills factor included 20 items. Bell-Dolan and Allan (1998) examined the suggestion of Matson (1990) that the teacher version could also be used with parents. Parents of 179 children completed the MESSY. Using exploratory principal component analysis with varimax rotation, Bell-Dolan & Allan (1998) identified seven factors: one scale addressing prosocial behavior and six scales addressing inappropriate social behaviors. The scale addressing prosocial behavior included 13 items of which 12 were also included in the Appropriate Social Skills factor in the Matson study (1983) (for the content of the Appropriate Social Skills factor and the content of the Prosocial Scale, see Appendix D). On the basis of our own examination of the psychometric characteristics of the MESSY (see chapter 3, section 3.2.1.3), we decided to use all 20 items of the factor in the Matson study, hereafter called *Prosocial Behavior*.

2.4.2 Secondary Outcome Measures

Table 2.3 Secondary Outcome Measures

SECONDARY OUTCOME MEASURES:

*** Measures of parent/family (dys)functioning:**

- Information obtained from the parent(s):
Nijmegen Questionnaire on the Child-Rearing Situation
(Wels & Robbroeckx, 1996)
Symptom Checklist SCL-90
(Derogatis, 1975; Arrindell & Ettema, 1986)

*** Measure of the life-events in the family:**

- Two items of the Life-events Checklist

2.4.2.1 Nijmegen Questionnaire on Child-Rearing Situations [Nijmeegse Vragenlijst voor Opvoedingssituaties]

It has been demonstrated that DBD children are a heavy strain on the family, specifically the parents. For example, Patterson (1982) showed that conduct disordered children, aged 10 and 11, misbehave as frequently as do normal 2 to 4 year-old children. In order to study the parent's subjective perception of the child rearing situation, the Nijmegen Questionnaire on Child-Rearing Situation (in Dutch the Nijmeegse Vragenlijst voor de Opvoedingssituatie, NVOS; Wels & Robbroeckx, 1996) was used.

The questionnaire consists of four parts. The first part (part A) consists of eight different subscales. These are all related to the subjective opinions of the parents concerning the parenting stress they feel. The second (part B) consists of eight descriptions of parenting situations of increasing problematic nature. The parent is asked to indicate which of the eight descriptions best fits his/her own situation (in order to get a general judgement of the parent about the parenting situation). In the third part (part C) the attribution of the current parenting situation is looked at: do parents ascribe their parenting situation to causes within themselves or to external causes? In the fourth part (part D), the degree of satisfaction with the current situation and needs and expectations of help are investigated. The questionnaire discriminates between clinical and non-clinical samples (Wels & Robbroeckx, 1991).

In our study we only used part A and B. Part A consists of 46 items. These 46 items are subdivided in eight different categories: acceptance, coping, experiencing problems, change of situation, the child as a burden, managing on one's own, pleasure, and relation. Studying the internal consistency of the different categories of part A, Wels and Robbroeckx (1991) found that all categories had acceptable alpha's (ranging for mothers from .68 to .87, for fathers from .67 to .87). Moreover, test-retest stability varied from .78 to .92, which is very adequate. We used the total of the mean scores of all categories of part A together, ranging from 8 (low subjective Perception of Parenting Stress) to 40 (high subjective Perception of Parenting Stress). Part B consists of eight descriptions of a parenting situation (ranging from 1 = *I experience no problem/problem free* to 8 = *I am desperate about the parenting of my child/very problematic*). Test-retest stability (in a normal control group) was very low (r ranged from .06 to .16). For part B we used the mean of the general Judgement of the Parenting Situation (ranging from 1 to 8). In the clinical sample the scores of the mothers on part A and part B correlate significantly ($r = 0.71$, $p < 0.01$). This is also the case with respect to the scores of the fathers ($r = 0.60$, $p < 0.01$). Part A seems adequate because of the high test-retest stability, but has an extended number of items, whereas part B seems adequate because of the short and simple way of administering only eight items, but has a low stability. As we had no clear rationale for choosing between one or other, we included both.

2.4.2.2 Symptom-Check List SCL-90

The Symptom-Checklist SCL-90 (Derogatis, 1975, Derogatis, 1977; Dutch version, Arrindell & Ettema, 1986) is a frequently used multidimensional inventory for measuring symptomatic distress. We used this test as a secondary outcome measure (next to being a possible moderator see section 2.4.3.6) to study whether the treatment of (and the expected decrease in) the problem behavior of the child also affected the symptomatic distress of the parents.

In the Dutch version, the checklist consists of 90 items referring to the physical and psychological complaints of the subject during the past week. Each item is rated on a 5-point Likert scale (ranging from 1 = *not at all* to 5 = *very much*). These 90 items refer to eight subscales, which taken together, form the global score on Psychoneuroticism (PSNEUR). Dutch gender-keyed norms are available for adult nonpatients (Arrindell & Ettema, 1986). Though this instrument has various subscales, we used only the global score on Psychoneuroticism of both parents.

2.4.2.3 Life-events Checklist (with two additional items)

Studies have documented the relationship between adverse life-events and psychiatric disorders in children (e.g., Tiet et al., 2001). In our study we wanted to investigate whether the effect of the treatment is related to the life-events in the families. A bi-directional influence was hypothesized: decrease in problem behavior results in fewer events (i.e., two items as secondary outcome measure: residential treatment and police contact), and/or life-events may affect treatment effect (i.e., life-events as a moderator; e.g., changes in the family structure). We constructed a list of life-events, specifically for DBD children and their families (see Appendix E). We used the checklist at the time of the 6-months follow-up. In this way, a retrospective report of the past 14 months could be given. The parents were asked to report whether each item on the list of life-events had happened in the previous period and, if so, further questions related to that event were asked (e.g., date, severity etc.). We used this checklist to compare both conditions on the items included, and to look at possible differences. See also chapter 3, section 3.2.2.1.

2.4.3 Measures related to the moderating factors

Table 2.4 Moderating factors (including the selection criteria factors 'intelligence' and 'psychiatric diagnosis')

MEASURES related to the MODERATING FACTORS:

* *Measures of the child:*

- Age
- Gender
- Intelligence- WISC-RN (Wechsler, 1974; Vandersteene et al., 1986)
- Diagnosis including comorbidity - DSM-IV (American Psychiatric Association, 1994)/ DISC (Kasius, 1997)
- Attention- D2 (Brickenkamp, 1994)
- Child Behavior Checklist (Achenbach, 1991a)
- Cortisol at baseline (biological factor; see chapter 7)
- Cortisol under stress (biological factor, see chapter 7)

* *Measures of (both) parent functioning:*

- Social economical status
- Symptom Checklist SCL-90 (Derogatis, 1975; Arrindell & Ettema, 1986)

* *Measures of the life-events in the family:*

- Life-events Checklist

2.4.3.1 Wechsler Intelligence Scale for Children Revised

Because IQ was a selection criterion for study entry, we assessed intelligence by means of the WISC-R. Besides being a selection criterion, the IQ was also studied as a possible moderator.

The Wechsler Intelligence Scale for Children Revised (WISC-R; Wechsler, 1974) and its recent revision, the Wechsler Intelligence Scale for Children-III (WISC-III; Wechsler, 1991) belong to the most frequently used intelligence tests in clinical practice. The WISC consists of 12 (in the WISC-R) or 13 (in the WISC-III) subtests. The test yields three IQs: the Full Scale IQ, based on the scores on all subtests, which represents a general measure of intellectual capacity; the Verbal IQ, based on the scores on the six verbal subtests, which is an overall index for the child's capacity in verbal comprehension and verbal reasoning; and a Performance IQ, based on the scores on the performance subtests (six in the WISC-R and seven in the WISC-III), which is an estimate of perceptual organization skills.

There is a Dutch version of the WISC-R (Wechsler, 1974), the WISC-RN (Vandersteene et al., 1986). For the WISC-RN Dutch age norms are available, based on a normative sample of

2,023 6- to 16-years-olds. Several studies (for example, Moenaert and Vandersteene, 1993) demonstrated that the WISC-RN factor structure is comparable with the WISC-R factor model. In order to screen for the intellectual ability of the children in our study, we chose a short form of the WISC-RN consisting of Vocabulary and Block Design subtests. These two subtests have excellent reliability and correlate highly with the Full Scale over a wide age range (Sattler, 1988). The sum of scaled scores on these two subtests could be directly converted to an estimate of the Full Scale IQ (see Sattler, 1998 p 851). We decided to use the estimated WISC-RN Full Scale only if the Full Scale IQ, based on the scores on all subtests, was not available. Of the 77 children, 49 had a total WISC-RN, and the other 28 were administered with the two subtests. Of those 49 children, we correlated their 'estimated' WISC-RN Full Scale (based on the two subtests) with their total WISC-RN IQ. The correlation was significant ($r = .79, p < 0.001$) and confirmed the use of the estimated WISC-RN Full Scale of the other children.

2.4.3.2 Diagnostic Interview Schedule for Children- Parent Informant (DISC-P: Interview concerning the child)

The National Institute of Mental Health (NIMH) Diagnostic Interview Schedule for children (DISC) is a highly structured psychiatric interview designed to be administered by trained, lay interviewers in surveys of children and adolescents. The instrument can be used to ascertain the most common diagnoses defined by the American Psychiatric Association's DSM system (American Psychiatric Association, 1994). We used the DISC because we wanted to have an internationally accepted way of checking the clinical diagnoses, as the psychiatric disorders ODD and CD (or taken together as DBD) were the selection criteria for study entry. Moreover, we wanted to ascertain the absence or presence of comorbidity. Specifically, we wanted to study the influence of comorbidity with Attention Deficit Hyperactivity Disorder (ADHD) as a possible moderator on the effectiveness of treatment.

Several versions have been developed since 1979. We used the NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC-2.3; Fisher et al., 1992; Shaffer et al., 1996). The DISC-2.3 elicits DSM-III-R criteria for 31 diagnoses that are known to occur in childhood (Kasius, 1997). Two parallel versions of the instrument are available: the Youth version (DISC-C) designed for administration to children between the ages of 9 and 17 and the Parent version (DISC-P) designed for administration to parents or primary caretakers of children aged between 6 and 17 years. The DISC-2.3 is a reliable and economical tool for assessing child psychopathology (Shaffer et al., 1996). Test-retest reliability of the symptom and criterion scales was found to be good to excellent for parent scales. The DISC-P 2.3 version showed moderate to very good diagnostic validity (Schwab-Stone et al., 1996).

In the Netherlands, the use of this instrument in clinical practice is limited. If it is used, it is mostly in the context of research-committed patient care (Esmeijer, Veerman, ten Brink & Leeuwen, 1998). We used the NIMH DISC-2.3 parent version (at the start of the study) which generates DSM-III-R diagnoses (American Psychiatric Association, 1987). M.C. Kasius translated the DISC-2.3 version into Dutch in 1993. During the course of the study, a preliminary Dutch translation of the NIMH Diagnostic Interview Schedule Version IV (Shaffer, Fisher, Lucas, Dulcan & Schwab-Stone, 2000) was developed by Ferdinand & Van der Ende in 1998. The American DISC-IV version is compatible with DSM-IV, which is the currently used psychiatric classification (Shaffer et al., 2000). However, in order to obtain the same results with all participants, we decided to continue with the Dutch NIMH DISC-2.3 parent version. To compare the DISC-results with the clinical diagnosis, we made a conversion in the scoring results of the DISC, based on the differences between DSM-III-R and DSM-IV (see Appendix F). Related to our study, we were specifically interested in the diagnoses DBD, with or without ADHD.

2.4.3.3 Concentration Endurance Test (D2 TEST)

Because the child's ability to concentrate could possibly moderate treatment effect, we administered the D2 test to the child in order to test this capacity.

The D2 assesses sustained attention and visual scanning ability. The test consists of 14 lines with 47 letters each. The target is the letter 'd' with two marks alternatively above, below, or separated with one mark above and one mark below. Distracters are the letter 'p' with one to four marks, and the letter 'd' with one, three or four marks. The subject's task is to mark as many targets per line as possible. The time limit is 20 seconds per line (Spree & Strauss, 1991). Several scores can be computed to evaluate the patient's speed, accuracy, and persistence. Reliability (internal consistency) ranges from .87 to .98, and the internal validity is high (Oswald, Hagen & Brickenkamp, 1997). Test-retest reliabilities are high, ranging from .89 to .92 (Spree & Straus, 1991). Normative data given in the test manual are derived from rather large samples (n= 3,132) of normal students and adults, aged 9-60 years. Different normative data are available for each gender, various ages and school types (e.g., elementary and high school).

Though this instrument generates various scores, we used only *attention-concentration* (KL in manual), which has high reliability (Brickenkamp, 1994). It appeared that the attention-concentration score was not related to presence or absence of ADHD. The correlation was .09, indicating that two different constructs were being assessed.

2.4.3.4 Child Behavior Checklist

The severity of the problem behavior of the child at pretreatment could act as possible moderator. We therefore looked to see whether the effectiveness of treatment was influenced by the severity of the problem behavior of the child at pretreatment, using the CBCL-externalizing scale. For further description of the checklist see section 2.4.1.3.

2.4.3.5 Cortisol

Cortisol levels at baseline and under stress could act as possible moderators. We therefore looked to see whether the effectiveness of treatment was influenced by the cortisol levels at baseline or under stress. For further description of theoretical background, procedure etc. see chapter 7.

2.4.3.6 Symptom-Check List SCL-90

The Psychoneuroticism of both parents could act as a possible moderator (as well as being a secondary outcome measure see section 2.4.2.2.). We therefore looked to see whether the effectiveness of treatment was influenced by the symptomatic distress of the parents (for further description of the test see section 2.4.2.2.).

2.4.3.7 Life-events Checklist

See section 2.4.2.3

2.4.4 Measures related to the mediating factors

Table 2.5 Mediating factors

MEASURES related to the MEDIATING FACTORS:

Measures of the Social Problem-solving Skills:

- Information obtained from the child:
Social Problem-solving test (adapted from:
Cuperus, 1997; Matthys et al., 1999)
Anger Situation Questionnaire (adapted from:
Van Goozen, 1994)

Measures of the Parenting Skills:

- Information obtained from the parents:
Alabama Parenting Questionnaire
(Shelton, Frick & Wootton, 1996)

2.4.4.1 Anger Situation Questionnaire

The Anger Situation Questionnaire (ASQ) was originally developed to measure anger proneness in adults (Van Goozen, 1994). 'Anger proneness' is conceived as a disposition to appraise situations in an angry way, as a low threshold for angry action readiness, or both. Consequently, the questionnaire measures anger disposition in terms of 'experienced emotion', 'felt intensity' and 'action readiness' in response to a number of common anger-provoking situations. In the UCPP-condition we addressed the emotions of the children, specifically anger. Moreover, we addressed the possible responses to anger-provoking situations. To study possible changes in the children with regard to emotion, intensity and responses, we used the ASQ version for children.

This adapted version consists of eight vignettes or scenarios (see Appendix G). A vignette is a stand-in for a real-life situation. The respondent is asked to imagine being in each of the situations described (for this reason the vignettes are different for girls and boys). The research assistant reads aloud each vignette to the respondent, e.g., 'You bought beautiful new clothes and you are very glad with them. Arriving at school, some children laugh at you and say you look stupid and childish.' The first question assesses *problem recognition* by emotional experience: 'How would you feel in this situation?' The subject chooses 1 of 4 answers: (1) *sad*; (2) *scared*; (3) *angry*; (4) *nothing*. The second question assesses the *intensity of the emotional experience*: 'How strong or intense would your feeling be?' The subject chooses 1 out of 4 answers: (1) *slightly intense*; (2) *rather intense*; (3) *quite intense*; (4) *very intense*. The next question assesses *response generation*: 'How would you respond if you found yourself in this situation?' Research assistants coded each first response for quality as 'prosocial/assertive', 'antisocial/aggressive' or 'submissive/passive'. Finally, three responses are read to the respondent. The three responses to the vignette are placed in random order per vignette but consist of a prosocial/assertive response, an antisocial/aggressive response, and a passive/submissive response. The subject is asked: 'Which of the three responses would you choose?' Thus *response selection* is assessed. For the construction and selection of variables of the ASQ, see chapter 3, section 3.3.1.

2.4.4.2 Social Problem-solving Test

To assess social problem-solving skills in children, a social problem-solving test (SPT) was developed (Cuperus, 1997; Matthys et al., 1999), which followed the procedure developed by Dodge, Petit, McClaskey and Brown (1986). According to this method children are presented with videotaped vignettes of problematic social situations and questions designed to elicit responses that indicate their processing patterns at various steps. Because we addressed these

processing patterns in the UCPP-condition, we wanted to study the possible changes and improvements.

In our study we selected 4 out of 12 videotaped vignettes from a social problem-solving test (Cuperus, 1997; Matthys et al., 1999). Each videotaped vignette consisted of two parts. First the social problem was presented, e.g., the protagonist is building a plane but does not succeed, another boy offers to help him, the result being that the plane breaks into pieces. Then, the protagonist enacts three solutions to the problem: a prosocial/assertive solution, an antisocial/aggressive solution, and a passive/submissive one. These four vignettes (see Appendix H) represent three problem domains: Being Disadvantaged ('Lego' and 'Tag'), Coping with Competition ('Draughts') and Expectations of Peers ('Cycle-bags'). The problem domain 'Being Disadvantaged' was presented in two vignettes because this problem situation turned out to be the most problematic situation compared with the other domains (Cuperus, 1997; Matthys et al., 1999). The four videotaped vignettes were presented to the subjects in random order: in each videotaped vignette, the three prototypical solutions were also presented in random order.

In the introductory text for each problem situation the subject is asked to identify with the protagonist. In the example of the broken plane, the first question assesses *the number of cues*: 'What is happening?' The number of responses was scored. The next question assesses *problem recognition with respect to possible emotions*: 'How would you feel?' Four emotions (sad, scared, glad and angry) were all assessed on a 5-point Likert scale (e.g., ranging from 'not sad' to 'very sad'). The next question assesses *response generation*: 'What are you going to do?' The subject is then asked to think of other ways of responding to the situation. Responses were coded by research assistants for number and for quality as 'prosocial/assertive', 'antisocial/aggressive', and 'submissive/passive'. The subject is then presented with three solutions enacted by the protagonist. Each solution is followed by questions to assess self-efficacy evaluation. The questions refer to the subject's confidence that he/she would be able to behave in this way (*self-efficacy*): 'Would you be able to respond in this way?' The subject chooses 1 out of 5 answers: (ranging from 'very easy' to 'very difficult'). Finally, after the three responses have been presented and the related questions have been answered, the three videotaped responses are presented again, one after the other, and the subject is asked: 'Which of the three responses would you choose?' Thus *response selection* is assessed. For the construction and selection of variables of the SPT, see chapter 3, section 3.3.2.

2.4.4.2.1 Differences and similarities between the ASQ and the SPT

The ASQ and the SPT are both measures related to the social information-processing model of Crick and Dodge (1994). Therefore, we give a general overview of some specific differences and similarities of both measures:

	ASQ	SPT
<i>Differences</i>		
Number of vignettes	8	4
Number of questions per vignette	5	14 (several with subquestions)
Way of administering	Written stories	Video-fragments
<i>Similarities</i>		
Emotion	Question 1 and 2	Question 4 (a, b, c, d)
Response action	Question 4	Question 6
Response selection	Question 5	Question 14

Besides the differences and similarities between the SPT and ASQ (see above), there are several more specific features that need to be mentioned. First, both measures address

emotions, but in the ASQ the child is forced to select one answer (out of 4 choices: sad, scared, angry or nothing), and thereafter to mention the intensity of that emotion, whereas in the SPT the child is not forced to make a choice. In the SPT all four basic emotions (sad, scared, glad and angry) and their intensities are addressed. They therefore differ in response format and in the kind of emotions that are addressed. Second, in the ASQ we score only the first response action, whereas in the SPT we also score the second response action. Third, in the SPT extra information is collected: Number of Cues, Number of Responses, and Self-Efficacy related to prosocial, aggressive and submissive responses.

On the basis of these differences, we anticipated differences in certain scores of both instruments, response action and response selection in particular, despite a similarity in many of the questions. The ASQ with its limited number of questions may elicit faster (and less thoughtful) answers while the SPT may elicit more thoughtful answers. In a meta-analysis, Orobio de Castro (2000) has shown that visual presentation of situations (i.e., video) was consistently associated with smaller differences between aggressive children and non-aggressive children than auditory presentation (i.e., stimuli were read to children) or real-life situations. It could be therefore that the different ways of administering the vignettes of the ASQ (stories read to children) and SPT (video vignettes) will influence the outcome. So on the basis of our own experiences with these two instruments, next to the support by Orobio de Castro, we made our instrument of choice the ASQ, but we decided to use the SPT as well, because the SPT could give additional information (e.g., Number of Cues, Number of Responses).

Another point should be mentioned. Because both instruments have open-ended questions, the interviewer's judgement is required. Reliability of scoring was assessed in 30 subjects. All the research assistants (N = 25) scored responses. The mean κ for the ASQ question about the behavior response was .79 (ranging from .49 to .93). The mean κ for the SPT question about the first behavior response was .86 (ranging from .69 to .96), for the second behavior response .78 (ranging from .53 to .92). This reliability of scoring was acceptable.

2.4.4.3 Alabama Parenting Questionnaire

The Alabama Parenting Questionnaire (APQ; Frick, 1991) addresses the question of parenting skills and was designed for use in research on the relation between parenting practices and disruptive behavior disorders in children (Shelton, Frick & Wootton, 1996). We assumed that the disruptive behavior of the child would decrease by improving the parenting skills of the parents. To study this relation we used the APQ.

The questionnaire is a self-report scale and consists of 42 items scored on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). Of these 42 items, 35 items address five important aspects of parenting practices: parental involvement, use of positive parenting techniques, monitoring/supervision, inconsistency in discipline, and harsh discipline/corporal punishment (see Appendix I). The seven additional items measure specific discipline practices (e.g., ignoring or yelling) other than corporal punishment. These items were included as buffer items. Corporal punishment items thus were not presented in isolation from other forms of discipline, which could give an implicit negative bias toward these items. The APQ appeared to be useful for obtaining parental reports of parenting practices (Shelton et al, 1996). The scales of the APQ were rationally derived, and not extracted by factor analyses. Internal consistencies (Cronbach alpha's) were reported for the mothers of a clinical (N = 124) and a non-clinical group (N = 36) (see Table 2.6). On the basis of our own examination of the psychometric characteristics of the APQ (see chapter 3, section 3.3.3), we decided to use the scales *Positive Involvement*, *Poor Monitoring*, *Inconsistent Discipline* and *Corporal Punishment* in our study.

Table 2.6 The Alabama Parenting Questionnaire: Internal Consistency of items on APQ Scales for the American group (clinical and non-clinical)

Factor	American Clinical Mother (N = 124)	American Non-clinical Mother (N = 36)
Involvement	.80	.80
Positive Parenting	.79	.85
Poor Monitoring/Supervision	.63	.75
Inconsistent Discipline	.64	.74
Corporal Punishment	.45	.49

2.5 Procedure

DBD children were recruited from several institutions: three outpatient child psychiatric clinics, one at the Department of Child and Adolescent Psychiatry of the University Medical Center Utrecht and two at the Department of Child and Adolescent Psychiatry of the Psychiatric Center Zon & Schild (i.e., Symfora Group), called Fornhese, in Amersfoort, and the Mergaard in Almere. Children were also recruited from Regional Institutions for Outpatient Mental Health Care: in Utrecht (recently fused into Altrecht) and in Lelystad. The latter works in cooperation with the Riethorst, which is the Department of Child and Adolescent Psychiatry of the Psychiatric Clinic Veldwijk in Ermelo (recently fused into GGZ Meerkanten), and so we included this outpatient child psychiatric clinic too.

Subjects who met the selection criteria were randomly assigned to one of the two conditions. All the families that decided to participate in the effect study were also asked to join a related study investigating arousal-regulating mechanisms in DBD children (see chapter 7). At each of the three assessments we used the whole package of questionnaires and measures, with the exception of the WISC and the DISC; these two instruments were only used at the first assessment (at pretreatment). The Life-events Checklist was only used at the third assessment (at 6-months follow-up). The total study sample consists of 77 children: in the UCPP-condition there are 38 children, and in the C-condition there are 39 children.

2.5.1 Time-frame

When we checked the time between the assessments (see Table 2.7), it appeared that the time frame between pretreatment and 6-months follow-up was not significantly different between both conditions. However, from pre- to posttreatment the C-condition had significantly more months, and from posttreatment to 6-months follow-up, the C-condition had significantly fewer months compared with the UCPP-condition. These significant differences are in favor of the C-condition: a longer time frame offers a greater possibility of achieving behavioral changes in the child, whereas within a shorter time frame before the follow-up assessment there is less chance for extinction of the effect.

Table 2.7 Time frames: Means (M; in months) and Standard Deviations (SDs) for the Utrecht Coping Power Program (UCPP-condition) and the Care as Usual (C-condition)

Time frame	UCPP-condition ^a		C-condition ^b	
	M (SD)	M (SD)	t-value	p-value*
1: Pretreatment to posttreatment	7.83 (1.59)	8.81 (1.44)	2.835	0.006
2: Posttreatment to 6-months follow-up	6.23 (0.66)	5.86 (0.88)	-2.050	0.044
3: Pretreatment to 6-months follow-up	14.06 (1.43)	14.68 (1.30)	1.986	0.051

^a N = 38, ^b N = 39; * p = two-tailed

2.6 Statistical methods and analyses

To study the effect of treatment we made two kinds of comparisons: comparisons *within* each condition (research question 1) and comparisons *between* both conditions (research question 2). In both kinds of comparisons, differences were assessed in various ways. (Differences in) treatment effectiveness were tested in terms of *statistical significance*. With respect to the within-group comparisons, we used paired sample t-tests. With respect to the between-group comparisons, difference scores were computed at posttreatment (by subtracting the primary and secondary scores at posttreatment from the pretreatment scores) and at 6-months follow-up (by subtracting the scores at 6-months follow-up from the pretreatment scores). These computed difference scores were compared between both conditions at posttreatment and 6-months follow-up, by using t-tests for independent samples. Difference scores have been criticized for some years for their inability to be both valid (i.e., do both assessments assess the same?) and reliable. However, methodological work has shown these objections to be largely founded in misconception (Willett, 1988; Zimmerman & Williams, 1982). We therefore chose to work with difference scores because the difference score has been demonstrated to be an intuitive, unbiased, and computationally simple measure of individual growth (Willett, 1988).

Differences in treatment effectiveness were also tested in terms of *effect sizes*. The effect size (ES) statistic is an index of the magnitude and direction of therapy effects. Effect sizes (ESs) were computed using the following formula:

$$d = \frac{M_1 - M_2}{\sqrt{\frac{(\sigma_1^2 + \sigma_2^2)}{2}}}$$

where, for the within-group comparisons, M_1 and σ_1^2 refer to the pretreatment and M_2 and σ_2^2 refer to the posttreatment (or 6-months follow-up). For the between-group comparisons M_1 and σ_1^2 refer to the UCPP-condition and M_2 and σ_2^2 refer to the C-condition (at posttreatment and at 6-months follow-up). Effect size is thus the difference between two means, divided by the pooled standard deviation of the two groups (Cohen, 1988). The d index is a measure of the degree to which two groups differ in terms of standard deviation units. For example, a d index of .25 indicates that the two group means were separated by one quarter of a standard deviation. In general, an effect size of 0.80 is considered to be large, 0.50 moderate, and 0.20 small (Cohen, 1992). Generally speaking, when an experimental condition is compared with an active control condition, small to medium ESs can be expected, whereas when an experimental treatment is compared with no treatment, medium to large ESs are likely (Cohen, 1988; Kazdin & Bass, 1989).

With regard to disruptive behavior we also computed a *composite-between group effect size* (i.e., ES between both conditions). We wanted to compute an 'overall measure', as we did not know which primary outcome measure of disruptive behavior was the most adequate. Therefore, we used the combination of the difference scores on PDR Overt Aggression, PDR Oppositional Behavior, IAB Overt Antisocial Behavior, IAB Covert Antisocial Behavior and CBCL Externalizing Behavior. The effect sizes were expressed by point-biserial correlations (r_{pb}). These correlations were transformed with the Fisher-z transformation (Rosnow and Rosenthal, 2002, Table B.6, p. 394). The average was calculated. The outcome was

transformed back into the metric of an effect size correlation (Rosnow and Rosenthal, 2002, Table B.7, p. 395). This effect size correlation value was expressed into a Cohen's *d* (in order to make all the ESs in this thesis comparable). For the translation from point-biserial correlation to Cohen's *d*, we used the following formula:

$$r_{pb} = \frac{M_2 - M_1}{S_y} \sqrt{p1p2} = \frac{M_2 - M_1}{S_y} \sqrt{\frac{N_1 N_2}{(N_1 + N_2)^2}} = d \times \frac{\sqrt{N_1 N_2}}{N_1 + N_2}$$

We also examined the *clinical significance of the two treatment conditions* (i.e. research question 3), with respect to the primary outcome measures, meaning that we examined the clinical significance of improvements in terms of either the reduction of problematic behaviors or the increase of prosocial behaviors to within the non-clinical range of functioning (Kazdin, 1992). We investigated the clinical significance in two ways: (1) mean level of the clinical population relative to the mean level of a non-clinical population; and (2) proportion of individual cases that fell within the normative range. We followed Achenbach & Edelbrock (1983) who identified the 90th percentile as cutoff scores for the upper limit of the normal range for the Externalizing Behavior scores of the Child Behavior Checklist. Scores below this percentile fall within the non-clinical ('normal') range. For present purposes, this percentile criterion was used to define the upper limit of the normal range on all primary outcome measures scores of disruptive behavior. For the CBCL and TRF, the 90th percentile score is 63. For the other primary outcome measures normative data were not available. Thus, for these measures we used the data of a non-clinical population that we investigated (see chapter 3). The 10th percentile criterion was used to define the lower limit of the normal range on the primary outcome scores of prosocial behavior. These scores, which defined the boundary of the normal range, were used as criteria to evaluate performance on the primary outcome measures of the clinical population. To examine the improvement of individual children, we evaluated the proportion of cases that fell within the normative range. Chi-square tests were computed to examine differences between the two conditions in placing children within the normal range.

Moderators and mediators were studied by the development of a model, with estimated path coefficients by means of LISREL. In the model, the moderators were fixed, whereas the mediators varied. Analyses were checked with independent t-tests of difference of differences scores on the mediating variables between the two conditions.

Finally, differences were analyzed from the point of view of *cost-effectiveness*. We computed the costs of the treatments in the UCPP-condition and the C-condition, restricted to the actual salary costs of the treatment-hours of the therapists. Moreover, we computed the possible costs of the UCPP treatment in the future, depending on who would be conducting the treatment (e.g., a psychotherapist in training, a clinical psychologist, a social-psychiatric nurse).

For some detailed information about the specifically used variables in the study, see Appendix J.

Method Check

Studying the effectiveness of treatment by self-report measures (e.g., by asking the parents to judge their own parenting skills), the risks of bias deserve attention. Howard et al. (1979) found that a response shift – a change in internal standard from pre- to posttest- may result in different scale units at the posttest than at the pretest. As a result, pretest-posttest comparisons within a condition, and posttest comparisons between conditions are less valid (especially

when these are based on difference scores). In order to check for this risk, we looked to see whether or not a response shift could be found. Thus, at posttreatment we first administered four questionnaires to the primary caretaker retrospectively relating to the pretreatment (i.e., PDR, IAB, CBCL and APQ). Subjects were asked how they perceived the problem behavior of their child and their own parenting skills to have been prior to the treatment. After filling in these 'then-questionnaires', the primary caretaker received the questionnaires related to the present situation (i.e., posttreatment). The data of pretreatment were compared with the then-test data, in order to investigate any possible response shift. So, we checked whether the validity of our data was acceptable. We described the results of this check in chapter 5, section 5.5. Next to the fact that we found it important to know whether our data were valid, we also used this check to see whether the use of difference scores was adequate.

Additional information on the psychometric characteristics of some of the methods used

3.1 Introduction

As discussed in chapter 2, we used several measures in the effectiveness study (see Table 3.1 for an overview of all the instruments). In this chapter we discuss all the instruments marked with an asterix in Table 3.1, in relation to the psychometric characteristics and the Dutch situation.

All the instruments, with the exception of the ASQ and the LC, have been used in clinical research. Because some of these instruments have hardly been used in the Netherlands (PDR, IAB, MESSY, and APQ) or are adaptations of former versions (i.e., ASQ and SPT), their psychometric characteristics needed to be studied. In studying the psychometric characteristics of the American instruments, for each of those instruments we followed the same procedure within our clinical sample. We first conducted reliability analyses based on the factor-structure found in the American studies. Where necessary, we omitted some items (per factor) in order to make the reliability more acceptable (i.e., Cronbach's alpha should reach our criterion of being at least .60). To study the psychometric characteristics of the adapted ASQ and SPT, we explored both assessment methods extensively.

To obtain scores on these instruments in a non-clinical group, we collected data from a control sample. We conducted a study with 189 school-aged, normal control children and their parents (in the years 1997 – 2000). These children were recruited from 5 different regular elementary schools in areas that differed with regard to density of population and religious denomination. The participants consisted of 101 girls and 88 boys, between 8 and 12 years old. These control children were tested at their schools. Pre-graduate students in clinical child psychology or pedagogy carried out the standardized psychological assessment during a session of about 2.5 hours in a quiet room during school hours. The tests (i.e., two subtests of the WISC-RN, the ASQ and the SPT) were administered in a fixed order. Two breaks were taken at fixed moments during the examination. The parent(s) of these children were sent a letter with instructions, and asked to complete and return the following questionnaires: IAB, CBCL, MESSY-parent version, APQ-mother and APQ-father. One questionnaire (the PDR) was administered by telephone.

Table 3.1 Instruments used in the effect study

	Full-name	Author	Measure pretension	Source
PDR* ^a	Parent Daily Report	Chamberlain & Reid, 1987	Problem behavior	Parent
IAB* ^a	Interview for Antisocial Behavior	Kazdin & Esveldt-Dawson, 1986	Antisocial behavior	Parent
CBCL ^a	Child Behavior Checklist	Achenbach, 1991a Verhulst et al., 1996	Externalizing Behavior	Parent
CBCL-TRF	Teacher's Report Form	Achenbach, 1991a Verhulst et al., 1997	Externalizing Behavior	Teacher
MESSY* ^a	Matson Evaluation of Social Skills	Matson et al., 1983	Prosocial Behavior	Child + Parent
NVOS	Nijmegen Questionnaire on the Child-Rearing Situation (Nijmegense vragenlijst voor opvoedingssituaties)	Wels & Robbroeckx, 1996	Subjective family stress	Parent (both)
SCL-90	Symptom Check List	Derogatis, 1975 Arrindell & Ettema, 1986	Psychological and physical complaints of the parent	Parent (both)
LC*	Life-events Checklist	-	Life-events	Parent
WISC-R ^a (WISC-RN)	Wechsler Intelligence Scale for Children Revised (Dutch version)	Wechsler, 1974 (Vandersteene et al., 1986)	Intelligence	Child
D2	Concentration Endurance Test	Brickenkamp, 1994	Concentration	Child
DISC-2.3	Diagnostic Interview Schedule for Children version 2.3	Fisher et al., 1992 Kasius, 1997	Psychiatric classification	Parent
ASQ* ^a	Anger Situation Questionnaire	Adapted from: Van Goozen, 1994	Angry emotion and behavior	Child
SPT* ^a	Social Problem-solving Test	Adapted from: Cuperus, 1997 Matthys et al., 1999	Social problem-solving	Child
APQ* ^a	Alabama Parenting Questionnaire	Shelton, et al. 1996	Parenting skills of the parent	Parent (both)

* = hardly used in the Netherlands before, or adapted versions

^a = studied in non-clinical group

The non-clinical group did not differ from the clinical group in age and intelligence (age: $M_{\text{non-clinical group}} = 10.17$ years, $SD = 1.27$; $M_{\text{clinical group}} = 10.14$ years, $SD = 1.25$, $t = 0.195$, $p < 0.85$; estimated mean IQ: $M_{\text{non-clinical group}} = 96.68$, $SD = 13.82$; $M_{\text{clinical group}} = 99.45$, $SD = 12.95$, $t = 1.514$, $p < 0.14$). Moreover, the T-scores of the non-clinical group on the CBCL externalizing ranged from 32 to 78 ($M_{T\text{-score}} = 49$, $SD = 11.32$). We decided to use the whole non-clinical group without excluding children with scores in the borderline or clinical range, because this represented more the daily life and behaviors of a normative population, than an 'ideal' normative sample, in which nobody produced dysfunctional scores.

In the following sections we describe the measures which have hardly been used in the Netherlands before or are adaptations of former versions: measures related to outcome in section 3.2, and measures related to mediating factors in section 3.3.

3.2 Outcome Measures

3.2.1 Primary Outcome Measures

3.2.1.1 Parent Daily Report

We translated the 34 items into Dutch (and back). At each assessment we interviewed the primary caretaker in order to target the problem behaviors of the particular child. Over the next two weeks, we telephoned the parent six times, asking which of the 34 items had actually occurred in the previous 24 hours. We studied the reliability of our scores of the clinical group ($n = 77$) and the non-clinical group ($n = 189$) on the basis of the items for the first two 'Fast Track' factors (see Conduct Problems Prevention Research Group, 1997; 1999): Overt Aggression and Oppositional Behavior. On the latter factor we included the items of the subscale non-compliance only, and thus excluded the items of the subscale verbal negativism, both because this seemed more logical in relation to content and because it increased Cronbach's alpha (see Table 3.2). We excluded the other three subscales because two of these (hyperactivity and depression) addressed constructs that were not the focus of our study. The other subscale (i.e., covert antisocial) had very low base rates and this construct was already addressed by another questionnaire (i.e., the IAB; see section 3.2.1.2). For the clinical group the Cronbach's alpha for the factor Overt Aggression was .86, for the factor Oppositional Behavior .84. For the non-clinical group the Cronbach's alpha for the factor Overt Aggression was .77, for the factor Oppositional Behavior .85. Both factors correlate in the clinical and non-clinical group significantly ($r = .69$ and $.62$, $p < 0.01$).

Table 3.2 The Parent Daily Report: Factors and item-total score correlations for the clinical group ($N = 77$) and the non-clinical group ($N = 189$)

Factor/item	Clinical group Item-total score r	Non-clinical group Item-total score r
Factor 1: Overt Aggression		
1. Aggressiveness	.68	.42
2. Arguing	.56	.61
10. Fighting with sibs	.75	.62
12. Hitting others	.73	.48
28. Teasing	.63	.56
31. Yelling	.55	.55
Factor 2: Oppositional Behavior		
7. Defiance	.65	.78
14. Irritableness	.58	.70
16. Negativism	.62	.53
18. Noncomplying	.69	.67
27. Talking back-adult	.61	.68
29. Temper tantrum	.55	.51

If we compare the scores on these factors between the clinical and non-clinical group, we find that both factors discriminate between the clinical and non-clinical group (see Table 3.3). As expected, both means of the clinical group are higher, indicating more Overt Aggression and Oppositional Behavior in the clinical than the non-clinical group.

Table 3.3 Comparison of the clinical and non-clinical group on Parent Daily Report factors

	Clinical ^a	Non-clinical ^b	t -value	p -value*
	M (SD)	M (SD)		
Overt Aggression	2.68 (1.48)	1.10 (1.04)	8.55	0.000
Oppositional Behavior	2.99 (1.36)	0.78 (0.98)	12.99	0.000

^a $N = 77$, ^b $N = 189$; * $p =$ two-tailed

In addition to these two factors, we decided to use the PDR Problem behavior score (34 max.) also. This additional variable was used for the response shift analysis (see chapter 5) only. As described before, the 34 items of the PDR were reviewed individually with the primary caretaking parent, who was asked to indicate which of those 34 behaviors he/she viewed as especially problematic. The number of items checked was used as the PDR problem behavior score (34 max.). This variable correlates significantly with both above mentioned factors ($p < 0.01$). In the clinical group, correlation is .51 with Overt Aggression, and .59 with Oppositional Behavior. In the non-clinical group, correlation is .46 with Overt Aggression, and .48 with Oppositional Behavior. As expected, the mean PDR problem behavior score (34 max.) is significantly higher in the clinical than in the non-clinical sample ($M_{\text{non-clinical group}} = 3.29$, $SD = 4.59$; $M_{\text{clinical group}} = 15.94$, $SD = 5.51$; t -value = 17.79, $p < 0.001$).

3.2.1.2 Interview for Antisocial Behavior

The questionnaire was translated into Dutch (and back). In order to examine the internal consistency of the Dutch version, we calculated Cronbach alpha's of Kazdin & Esveldt-Dawson's subscales (1986). Although the severity and duration of antisocial acts are both important in the assessment of antisocial behavior, for present purposes we used only the severity scores. Because the study was conducted over a relatively long period the duration

scores would have increased automatically if the problem behavior had not entirely disappeared. This would suggest more serious problem behavior, whereas in fact the severity might have decreased.

The psychometric characteristics of the scores on severity have been examined both in the clinical ($n = 76$) and the non-clinical group ($n = 180$). The results were comparable with the results in the Kazdin & Esveldt-Dawson study (1986). In this latter study, the internal consistency of the total antisocial behavior score (coefficient alpha) was .91. For our clinical group Cronbach's alpha was .90, and for our non-clinical group .91. In our clinical group, Cronbach's alpha for the factor Overt Antisocial Behaviors was .89, for the factor Covert Antisocial Behaviors .80, and for Self-injury .43. For the non-clinical group Cronbach's alpha for the factor Overt Antisocial Behaviors was .92, for the factor Covert Antisocial Behaviors .68, and for Self-injury .56.

Taking into account the purpose of this questionnaire to assess the antisocial behavior of the child and the values of Cronbach's alpha's, we decided to include the first two factors. Table 3.4 presents the items within these two factors, and the item-total score correlations. Both factors correlate in the clinical sample significantly ($r = .51, p < 0.01$) and in the non-clinical sample also ($r = .47, p < 0.01$).

Table 3.4 The Interview for Antisocial Behavior: Factors and item-total score correlations for the clinical group ($N = 76$) and the non-clinical group ($N = 180$)

Factor/item	Clinical group Item-total score r	Non-clinical group Item-total score r
Factor 1: Overt Antisocial Behaviors		
1 Temper tantrums	.50	.69
2 Teasing others	.62	.57
3 Using obscene language	.48	.54
4 Talking back to parents	.52	.65
5 Respecting authority	.59	.73
6 A negative attitude (saying no often)	.46	.77
7 Controlling his/her behavior	.28	.63
8 Moving around a lot and yelling	.55	.69
15 Being cruel, bullying, or being mean to others	.65	.44
23 Getting into many fights	.49	.34
24 Getting along with other children	.43	.48
25 Punching, kicking, or biting others	.73	.68
26 Verbally threatening others	.67	.64
27 Getting mad all of a sudden	.62	.72
28 Starting arguments	.65	.75
29 Fighting with brothers and sisters	.63	.57
30 Not being able to take turns or wait	.36	.71
Factor 2: Covert Antisocial Behaviors		
9 Breaking into cars, stores etc.	.33	-
10 Breaking windows of buildings, cars etc.	.10	-
11 Stealing from stores	.59	.43
12 Stealing from parents or friends	.61	-.02
13 Setting fires	.57	.33
14 Being cruel to animals	.38	.07
19 Breaking things that belong to him	.52	.72
20 Breaking things that belong to family or friends	.59	.73
21 Cutting up things such as seats on busses	.54	.45
22 Writing on car, walls, etc.	.63	.49

Comparing the scores on these two factors between the clinical and non-clinical group, we found that both factors discriminated between the clinical and non-clinical group (see Table 3.5). As expected, the mean scores of the clinical group appeared to be significantly higher for Overt and Covert Antisocial Behaviors than the mean scores of the non-clinical group.

Table 3.5 Comparison of clinical and non-clinical group on Interview for Antisocial Behavior factors

	Clinical ^a		Non-clinical ^b	
	M (SD)	M (SD)	t -value	p -value*
Overt Antisocial	54.26 (11.97)	25.21 (9.27)	-18.91	0.000
Covert Antisocial	14.82 (5.08)	10.31 (1.03)	-7.68	0.000

^a $N = 76$, ^b $N = 180$; * $p =$ two-tailed

3.2.1.3 Matson Evaluation of Social Skills with Youngsters (MESSY)

In our study we used the Adult version of the MESSY in both the clinical and the non-clinical group with all the originally 92 items included. We conducted reliability analyses on the Appropriate Social Skills factor found earlier by Matson et al. (1983) and on the Prosocial factor found by Bell-Dolan and Allan (1998). When we used the items in the factor of the Matson study (1983), Cronbach's alpha was .87 for the clinical group, and .90 for the non-clinical group. When we used the items of the factor of the Bell-Dolan and Allan study (1998), Cronbach's alpha was .86 for the clinical group, and .88 for the non-clinical group. We therefore decided to use the factor based on the Matson study (1983) and called it *Prosocial Behavior*. Table 3.6 presents the items within this factor and the item-total score correlations. The mean scores of the non-clinical group were significantly higher for Prosocial Behavior than the mean scores of the clinical group (see Table 3.7).

Table 3.6 The Matson Evaluation of Social Skills with Youngsters: MESSY for Parent-Report. Item-total score correlations for the clinical group ($N = 76$) and the non-clinical group ($N = 180$)

Factor/item	Clinical group Item-total score r	Non-clinical group Item-total score r
Factor:Prosocial Behavior		
1 Makes other people laugh	.42	.31
12 Helps a friend who is hurt	.57	.62
24 Walks up to people and starts a conversation	.51	.53
25 Says "Thank you" and is happy when someone does something for him/her	.71	.58
35 Sticks up for friends	.43	.66
36 Looks at people when they are speaking	.44	.54
42 Smiles at people he/she knows	.56	.59
49 Thinks good things are going to happen	.50	.45
50 Works well on a team	.31	.51
53 Takes care of others' property as if it were his/her own	.26	.42
55 Calls people by their names	.41	.43
56 Asks if he/she can be of help	.58	.64
57 Feels good if he/she helps others	.64	.65
62 Asks questions when talking with others	.44	.50
72 Feels sorry when he/she hurts others	.61	.56
75 Joins in games with other children	.48	.48
76 Plays by the rules of a game	.36	.51
79 Does nice things for others who are nice to him/her	.39	.65
81 Asks others how they are, what they have been doing etc.	.65	.67
86 Is friendly to new people he/she meets	.28	.47

Table 3.7 Comparison of the clinical and non-clinical group on the Prosocial factor of the MESSY for Parent-Report

	Clinical ^a	Non-clinical ^b	t -value	p-value*
	M (SD)	M (SD)		
Prosocial Behavior	54.71 (12.15)	72.98 (12.38)	10.85	0.000

^a $N = 76$, ^b $N = 180$; * $p =$ two-tailed

3.2.2 Secondary Outcome Measures

3.2.2.1 Life-events Checklist

A self-constructed checklist was employed in our study to measure life-events. Because the checklist is merely a list of separate items (and is not intended to be a scale) the psychometric properties are irrelevant. In order to construct a representative checklist, we used several sources. The selected items were partly based on the Life-events Questionnaire (Vragenlijst recent meegemaakte gebeurtenissen, Van de Willege, Schreurs, Tellegen & Zwart, 1985), and partly based on the knowledge and experience of several clinicians in our Department of Child and Adolescent Psychiatry.

3.3 Measures related to the mediating factors

3.3.1 Anger Situation Questionnaire for children (ASQ)

This adapted version of the Anger Situation Questionnaire consists of eight vignettes or scenarios. Each vignette has three dimensions: emotional experience, intensity of emotional experience, and action readiness. An *Anger Score* was calculated as the percentage of items checked for anger (category c). The *mean intensity of anger* was calculated as the total score on intensity values, given the vignette was checked for anger, divided by the number of items checked for anger. The action readiness was assessed in two different ways: by scoring an open-ended question and by scores based on response selection (out of three action tendencies specifically tailored to the situation under consideration). For both questions, two behavior response-scores were calculated: a *percentage of aggressive behavior responses* and a *percentage of prosocial behavior responses*.

On the basis of these variables, we compared the clinical group with the non-clinical group (Table 3.8). Compared to the non-clinical group, the clinical group indicated anger more frequently and the intensity of their anger is greater. Further, it appeared that the clinical group more often gave an Aggressive Response (spontaneously and when selecting one out of three response categories) and less often a Prosocial Response (spontaneously and when selecting one out of three response categories) than the non-clinical group.

Table 3.8 Comparison of the clinical and non-clinical group on the Anger Situation Questionnaire-variables

	Clinical	Non-clinical	<i>t</i> -value	<i>p</i> -value*
	M (SD)	M (SD)		
Anger Score	60.06 (21.17)	54.63 (19.81)	-1.99	0.048
Anger Intensity	3.10 (0.57)	2.66 (0.50)	-6.15	0.000
% of Aggressive Responses	29.55 (25.72)	12.76 (16.61)	-5.29	0.000
% of Prosocial Responses	45.45 (24.74)	61.64 (24.02)	4.94	0.000
Response Selection: % Aggressive	22.73 (23.71)	6.08 (11.21)	-5.90	0.000
Response Selection: % Prosocial	61.20 (23.96)	71.36 (18.12)	3.35	0.001

* *p* = two-tailed

3.3.2 Social Problem-solving Test (SPT)

We used four videotaped vignettes. Fourteen measures were generated from the questions to assess social problem-solving skills. We assumed for the purpose of this study, that it would be theoretically justified to sum the scores across all four situations. Matthys, Maassen, Cuperus and Van Engeland (2001) found that 52% of the common variance in problem scores is explained by a general problem behavior factor, whereas 18% is explained by domain specificity of the problem behavior. Whilst acknowledging that the degree to which problem behavior is situation specific should not be disregarded, we think that the general problem behavior factor is most relevant for this study.

The responses to the first question, i.e., *Number of Cues*, were summed across the four situations. This was permissible because for the clinical group the correlation coefficients between the scores of this question were all significant at the 0.01 level and ranged from .42 to .58. The scores appeared to be highly internally consistent (Cronbach's alpha was .80). This made a good measure of encoding. The responses to the emotions were adjusted. First, we summed the scores on the three negative emotions (i.e., sad, angry and scared) for each vignette. Because correlations of this new variable 'negative emotion' between the four vignettes were all significant at the 0.01 level, ranging from .33 to .55, with Cronbach's alpha being .81, we made an overall *negative emotions* variable by summing these scores across the four situations. Response generation was measured by the *number of possible responses* to a situation. To this end, the number of responses were also summed across the four situations. The correlations were not all significant for the clinical group, but they were for the non-clinical group. On the basis of the scoring of the quality of the responses, we made variables for the *first response*, for the *second response*, and for the sum of both responses (*total response*), each time both for *aggressive* and *prosocial* types of responses. We calculated the *self-efficacy* of the children, related to the three standardized solutions (i.e., prosocial, aggressive and submissive) enacted by the protagonist, summing the efficacy scores related to the same kind of solution in all four video-vignettes. An efficacy score was thus obtained related to the prosocial solutions (most correlations were significant at the 0.01 level; ranging from .18 to .50), to the aggressive solutions (all significant at the 0.01 level; ranging from .32 to .49) and to the submissive solutions (all significant at the 0.01 level; ranging from .34 to .56). The last two variables were related to *response selection*: we calculated the percentage of vignettes in which an aggressive behavior response was chosen and calculated the percentage of vignettes in which a prosocial behavior response was chosen.

On the basis of these variables, we compared the clinical group with the non-clinical group (see Table 3.9). Compared to the non-clinical group, the Number of Cues encoded by the clinical group was lower. Compared to the non-clinical group, the Number of Responses generated by the clinical group was lower. The two groups showed no significant difference on their Negative Emotions. Studying the content of their responses, the clinical group appeared more often to generate an Aggressive Response as a first response, and less often a Prosocial Response as a second response, than the non-clinical group. With respect to self-efficacy, it appeared that for all kind of responses the clinical group considered themselves more effective than the non-clinical group (i.e., a lower score meaning less difficulty in performing). With respect to response selection we found no significant differences.

Table 3.9 Comparison of the clinical and non-clinical group on the Social Problem-solving Test-variables

	Clinical	Non-clinical ^a	<i>t</i> -value	p-value*
	M (SD)	M (SD)		
No. of cues	15.42 (6.04)	18.53 (6.48)	3.62	0.000
Negative Emotions	27.75 (9.01)	29.33 (6.33)	1.40	0.164
Response generation: No. of responses	12.66 (3.14)	13.94 (2.84)	3.21	0.001
First Response: % of Aggressive Responses	10.39 (15.89)	5.05 (11.61)	-2.67	0.009
First Response: % of Prosocial Responses	57.47 (27.53)	57.71 (27.37)	.07	0.947
Second Response: % of Aggressive Responses	13.64 (18.82)	10.37 (16.92)	-1.38	0.169
Second Response: % of Prosocial Responses	36.04 (28.24)	44.81 (27.66)	2.33	0.021
Total Response generation: Aggressive Responses (max. score 200)	24.03 (27.64)	15.43 (20.88)	-2.46	0.015
Total Response generation: Prosocial Responses (max. score 200)	93.51 (41.24)	102.53 (41.01)	1.62	0.106
Self-efficacy ^b : Prosocial Response	6.87 (3.34)	9.12 (2.71)	5.25	0.000
Self-efficacy ^b : Aggressive Response	8.13 (4.10)	9.64 (2.96)	2.93	0.004
Self-efficacy ^b : Submissive response	7.99 (3.96)	9.66 (2.73)	3.39	0.001
Response selection: % Aggressive	14.29 (23.09)	15.29 (22.14)	.33	0.740
Response selection: % Prosocial	58.44 (27.98)	60.90 (26.38)	.68	0.498

^a N = 188

^b with respect to the self-efficacy a higher score means more difficulty in giving that response versus a lower score which means less difficulty in acting that way

* p = two-tailed

3.3.3 Alabama Parenting Questionnaire (APQ)

This questionnaire was translated into Dutch (and back). In order to examine the internal consistency of the Dutch version, reliability analyses were conducted on the basis of the five subscales (see Table 3.10). Because Cronbach's alphas were not acceptable for all the subscales, we made some adjustments. On the basis of the finding by Shelton et al. (1996) that the two positive parenting scales (Involvement and Positive Parenting) were highly correlated, and seem to assess a single dimension of positive parenting, we summed the items of these subscales. Thereafter, we tried to increase Cronbach's alphas of the remaining four subscales by omitting some items with low item-total score correlations. As a starting point, we used the scores of the mothers of the clinical group. Taken into account the theoretical construct of each subscale, we finally formed four subscales with an acceptable reliability (see Table 3.11), including items related to the specific construct (theoretically and statistically), and excluding items with theoretically comparable relations to the construct, but with low item-total score correlations.

Table 3.10 The Alabama Parenting Questionnaire: Internal consistency of items on APQ scales for the Dutch group (clinical and non-clinical)

Subscale	Dutch Clinical		Dutch Non-clinical	
	Mother	Father	Mother	Father
	N = 75	N = 65	N = 177	N = 156
Involvement	.65	.65	.70	.70
Positive Parenting	.74	.76	.65	.71
Poor Monitoring/Supervision	.53	.62	.71	.62
Inconsistent Discipline	.62	.56	.68	.49
Corporal Punishment	.70	.77	.68	.51

Table 3.11 The Alabama Parenting Questionnaire: Item-total score correlations for the clinical group and the non-clinical group

Subscale/item	Clinical		Non-clinical	
	Item-total score <i>r</i>	Item-total score <i>r</i>	Item-total score <i>r</i>	Item-total score <i>r</i>
	Mother N = 75	Father N = 65	Mother N = 177	Father N = 156
Positive Involvement	$\alpha = .82$	$\alpha = .76$	$\alpha = .74$	$\alpha = .74$
7 You play games or do other fun things with your child	.42	.51	.39	.29
14 You ask your child what his/her plans are for the coming day	.49	.47	.30	.37
20 You talk to your child about his/her friends	.61	.53	.43	.47
23 Your child helps to plan family activities	.52	.18	.42	.40
2 You let your child know when he/she is doing a good job	.56	.57	.42	.45
13 You compliment your child when he/she does something well	.75	.58	.55	.55
16 You praise your child if he/she behaves well	.57	.53	.58	.47
27 You tell your child that you like it when he/she helps around the house	.50	.46	.46	.49
Poor Monitoring	$\alpha = .64$	$\alpha = .73$	$\alpha = .74$	$\alpha = .47$
17 Your child is out with friends you do not know	.36	.51	.61	.21
19 Your child goes out without a set time to be home	.43	.57	.59	.31
21 Your child is out after dark without an adult with him/her	.35	.48	.38	.26
24 You get so busy that you forget where your child is and what he/she is doing	.34	.38	.47	.26
30 Your child comes home from school more than an hour past the time you expect him/her	.50	.58	.53	.22
Inconsistent Discipline	$\alpha = .68$	$\alpha = .64$	$\alpha = .70$	$\alpha = .53$
3 You threatened to punish your child and then do not actually punish him/her	.41	.49	.40	.33
8 Your child talks you out of being punished after it has done something wrong	.45	.31	.49	.36
22 You let your child out of a punishment early	.55	.44	.58	.38
31 The punishment you give your child depends on your mood	.44	.48	.46	.21
Corporal Punishment	$\alpha = .78$	$\alpha = .90$	$\alpha = .79$	$\alpha = .78$
33 You spank your child with your hand when it has done something wrong	.65	.81	.66	.64
35 You slap your child when he/she has done something wrong	.65	.81	.66	.64

The correlations between these four subscales in the clinical and non-clinical group are shown in Table 3.12. Positive Involvement correlates negatively and/or very poorly with the other three subscales, indicating that it assesses a different parenting dimension. For the other three subscales the correlations for the clinical group ranged from -0.10 to 0.40, for the non-clinical group they ranged from 0.02 to 0.54.

Table 3.12 Correlations of the four Alabama Parenting Questionnaire-subscales in the clinical (above diagonal) and non-clinical (under diagonal) group of mothers and fathers

		Clinical Group							
		Positive Involvement		Poor Monitoring		Inconsistent Discipline		Corporal Punishment	
		Mother	Father	Mother	Father	Mother	Father	Mother	Father
Positive Involvement	Mother		.27*	-.30**	-.32*	.03	.08	-.28*	.00
	Father	.30**		-.04	-.20	-.13	-.02	-.27*	-.16
Poor Monitoring	Mother	-.50**	-.26**		.28*	.29*	-.10	.33**	-.07
	Father	-.09	-.18*	.25**		-.00	.31*	.09	.13
Inconsistent Discipline	Mother	-.21**	.04	.36**	.02		.11	.20	.03
	Father	-.06	.04	.03	.29**	.40**		.01	.33**
Corporal Punishment	Mother	-.29**	.02	.32**	.16*	.54**	.28**		.40**
	Father	-.14	-.17*	.24**	.11	.38**	.30**	.45**	

Non-clinical Group

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

As shown in Table 3.13, mothers' judgement of their parenting skills differed between the clinical and the non-clinical group on Poor Monitoring and Corporal Punishment. Mothers in the clinical group seemed to monitor their children less, and to use more corporal punishment, than mothers in the non-clinical sample. Fathers' judgement of his parenting skills differed between the clinical and the non-clinical group on three skills: Positive Involvement, Poor Monitoring and Corporal Punishment. The fathers in the clinical sample seemed to use less positive involvement practices than the non-clinical sample, as well as monitoring their children less and using more corporal punishment.

Table 3.13 Comparison of the clinical and non-clinical group on the Alabama Parenting Questionnaire subscales

	Mother				Father			
	Clinical ^a	Non-clinical ^b	t-value	p*	Clinical ^c	Non-clinical ^d	t-value	p-value*
	M	M			M	M		
Positive Involvement	30.59 (4.06)	31.32 (3.50)	1.36	.177	27.25 (3.98)	28.92 (3.49)	3.12	.002
Poor Monitoring	7.77 (2.52)	6.91 (2.51)	-2.49	.013	8.83 (3.18)	7.59 (1.97)	-2.92	.004
Inconsistent Discipline	10.01 (2.60)	9.77 (2.69)	-0.65	.515	10.09 (2.55)	9.64 (2.37)	-1.26	.209
Corporal Punishment	4.33 (1.46)	3.42 (1.45)	-4.54	.000	4.54 (1.76)	3.35 (1.36)	-4.89	.000

^a N = 75 ^b N = 177 ^c N = 65 ^d N = 156

* p = two-tailed

The experimental treatment: The Utrecht Coping Power Program

4.1 Introduction

In this effect study, the program in the experimental condition is an adaptation of Lochman and Wells' Coping Power Program. The Coping Power Program (CPP) is a school-based preventive intervention program that consists of a parental and a child component (Lochman & Wells, 1996). The child component is an extension of the Anger Coping Program (ACP; for session content see Lochman, Lampron, Gemner & Harris, 1987). The ACP has been evaluated extensively (Lochman, 1992; Lochman & Lenhart, 1993), and the preventive effects were encouraging but limited (i.e., not all areas of the child's functioning improved in the long run). The CPP therefore extends the ACP by having a longer structured period of intervention (covering 15 months) and by including a direct focus on parental factors associated with the development and maintenance of children's aggressive behavior (Lochman & Wells, 1996). In the CPP, the child component, judged 'probably efficacious' (Brestan & Eyberg, 1998), is therefore combined with a parental training that has been judged 'well established' (Brestan & Eyberg, 1998). After describing the background of the CPP (section 4.2), we give some information on the content of CPP in section 4.3, whereafter we describe our adapted (Dutch) Utrecht Coping Power Program (section 4.4).

4.2 Background

The CPP *parental component* is based on a model in which social interactional processes between parent and child are thought to play a role in the persistence of antisocial behavior (Patterson, 1982; Patterson et al., 1992). The parental training is based on the development of behavioral modification techniques, particularly those based on operant conditioning. Operant conditioning is a learning principle which assumes that the presence of behavior depends on the consequences that follow the behavior (Kiesner, Dishion & Poulin, 2001). The parental training aims to teach parents to alter the reinforcement contingencies supporting the child's antisocial behavior. Parental training thus focuses on teaching parents how to promote desirable, prosocial behaviors in their child while at the same time applying discipline to minimize undesirable, maladaptive behavior. For example, parents are taught skills directed toward improving child compliance (e.g., they are instructed to respond to the child with praise as soon as the child begins to comply). Parents are also trained to use time-out as a punishment for selected child misbehaviors.

The CPP *child component* is a cognitive behavioral intervention that focuses on the deviant cognitive processing of events by children with behavioral disorders. According to social information-processing models based on problem-solving models and cognitive theories of information processing (Crick & Dodge, 1994), children engage in various mental steps before enacting competent or incompetent (e.g., antisocial) behaviors when faced with social situational cues. These steps include encoding situational cues, interpreting and representing these cues, clarification or selection of a goal, response access or construction, response decision, and behavioral enactment. Various studies have demonstrated that children with behavioral disorders exhibit characteristic perceptions of their environment and social problem-solving skills (Lochman et al., 1991; Matthys & Van Engeland, 1992). For example,

disruptive behavior disorder (DBD) children have been found to differ from nonaggressive peers in that they attend to fewer social cues (Matthys et al., 1999). In addition, aggressive children appear to attend selectively to hostile social cues (Gouze, 1987), thus enhancing the likelihood that they will interpret stimuli in a hostile way (Dodge & Frame, 1982). In the face of social problems, behaviorally disordered children generate fewer solutions than normal controls (Matthys et al., 1999). In evaluating possible solutions, aggressive children are more confident than nonaggressive children that aggression will produce a tangible result and reduce adverse treatment by others (Perry et al., 1986). Moreover, DBD children are more confident in their ability to enact an aggressive response, and more often choose an aggressive response from various types of responses than normal controls (Matthys et al., 1999). Cognitive behavioral intervention targets these social cognitive dysfunctions. The children learn and practice identifying and solving social problems.

Features that contribute to these distortions and deficiencies in information processing deserve attention, such as aggressive children's affect labeling and their automatic memory processes. Lochman and Lenhart (1993) suggested aggressive children were less adept at recognizing or reporting their level of anger, and that aggressive children feel less capable of controlling their emotional reactions and therefore have a stronger need to deny internal affective arousal. In the CPP child component, the children are taught to identify and control their feelings, especially with regard to anger. In addition, a distinction can be made between different modes of information processing based on differences in styles of cognitive operation (see Lochman & Lenhart, 1993). Children can process social information in a deliberate or 'reflective' manner, which involves a conscious evaluation of the problem situation and potential solutions. The second mode of information processing is considered 'automatic' and involves a less conscious appraisal of the situation and resolution strategies. Lochman, Lampron and Rabiner (1989b) found that aggressive children are better able to generate appropriate solutions when engaged in 'reflective' social reasoning than when relying on 'automatic' processing. The intervention is designed to trigger and practice this 'reflective' manner, in the belief that long practice will gradually make this a more 'automatic' process.

4.3 The Coping Power Program

The Coping Power Program is a preventive intervention condition, which lasts from the spring (i.e., March) of the first school year through June of the following year. The parental and child component begin at the same time.

4.3.1 Coping Power Parent Component

The CPP parental component consists of 18 group sessions, with two co-leaders. Three introductory parental sessions occur over the spring and early summer (starting at the same time as the child component), then resume in September, beginning with weekly meetings that are gradually reduced over the course of the year to biweekly and then monthly sessions. Over the course of the 15 sessions, parents learn skills for (a) identifying prosocial and disruptive behavioral targets in their children using specific operational terms, (b) rewarding appropriate child behaviors, (c) giving effective instructions and establishing age-appropriate rules and expectations for their children in the home, (d) applying effective consequences to negative child behavior, (e) managing child behavior outside the home, and (f) establishing ongoing family communication structures in the home (such as weekly family meetings). In addition to these 'standard' parent training skills, parents also learn additional skills to support the social-cognitive and problem-solving skills that children learn in the CPP child component. A final section of the CPP parental component includes two sessions on stress management for parents.

4.3.2 Coping Power Child Component

The CPP child component consists of 33 weekly group sessions over a 15-month period. Groups are co-led by CPP intervention staff and by a school counselor located at each school. Sessions are held during the school day at the children's school and last 45 to 60 minutes per session. The CPP child component groups are based on the anger-coping group sessions and include (a) additional emphasis on long-term goal setting; (b) awareness of feelings related to vulnerability; (c) more practice with self-instruction training and perspective taking; (d) application of social problem-solving to specific situations involving friendship initiation, group entry, peer negotiation, sibling conflicts, school study skills, teacher conflict, and neighborhood problems; and (e) resistance to peer pressure. Sessions typically include a combination of activities, discussion, and role-playing. The CPP child component also occasionally includes a 'one-to-one' session between CPP staff and each child.

In addition to these components, this CPP is implemented in the school. First, sessions are held during the school day at the children's school. Beside using a school-counselor as a co-leader in the child component of the CPP, teachers also have two prominent functions. First, they provide information throughout the year on a child's behavioral difficulties. Second, teachers have the role of monitoring children's completion of goals on the weekly goal-settings forms. Peers have a prominent role too. As co-participants in the CPP child component, and coming from the same natural environment at school, they can encourage each other in behavioral improvement during out-of-group time.

4.4 The Utrecht Coping Power Program

The Utrecht Coping Power Program is a translated and adapted form of the Coping Power Program described above, and also consists of a parental and a child component. Below we describe some general adjustments we have made to this program. Thereafter we describe the content of both components more specifically.

4.4.1 General adjustments

Since the CPP is a preventive program of intervention, we needed to adjust the program to suit more severely disturbed children and their parents. In adapting child sessions we took into consideration some well known characteristics of clinically referred DBD children (American Psychiatric Association, 1994): short attention span (often related to comorbidity with ADHD), lower than average verbal intelligence, a level of academic achievement below that expected on the basis of intelligence (and sometimes caused by a learning disorder), and an orientation toward action. The UCPP sessions were therefore rather more varied, with proportionally fewer discussions and more activities (playing games, showing videovignettes) than the CPP sessions. Explanations and instructions were also given more concisely and more concretely. We thus adjusted the manuals on the basis of the clinical experience of a child psychiatrist and a behavioral therapist. Thereafter, the treatment program was given as a pilot to in-patient and day-treatment DBD children at Vosseveld, a division of the Department of Child and Adolescent Psychiatry, University Medical Center Utrecht. During this process, some final adjustments were made, keeping the outpatient care in mind.

In addition to combining the parental and child component, we also decided to integrate both components. This was accomplished in several ways. First, the same two therapists were used for both the parental and the child group. This made it easier to transfer the information on children's achievements and progress to their parent(s). The children were told that the therapists would keep their parents informed. This prevented ambiguities arising between therapists and parents, and reduced the risk of children trying to play them off against each other. Second, unlike the CPP, we did not commence both treatment groups simultaneously, but held three parent' sessions before starting with the child sessions. The reason for this was

to provide the parents with the initiative introducing the changes envisaged. The child, in thus realizing that parents and their parenting practices were changing, would probably experience greater problems than before with his/her behavior and would therefore be more motivated to begin changing his/her behavior in the child component training. Third, in order to involve the parents in the child treatment, the last quarter of the parental meeting was devoted to the previous child session(s). Parents were given a summary of the child session(s) and the therapists explained the topics of the child session(s). In 7 of the 15 parental sessions, some minutes of videotaped child sessions were also shown (e.g., anger management, each of the five problem-solving skills).

As in the CPP, transfer of training was accomplished, but partly in different ways. Both programs treat the children in a group, since in this setting they can practice several skills with each other under the guidance of the therapists. Practicing skills with peers is considered to be a more natural way of mastering the skills (compared with individual contact with an adult), through which the transfer of training has a greater chance of success. To assist and challenge the children in practicing skills in their daily life, the American and Dutch Program use a different method. In the CPP, children get weekly goal-setting forms which have to be signed by their teachers once a day, indicating whether or not the child has met the goal for that day or not. In the UCPP, children are given weekly homework assignments that are checked, discussed and rewarded by the therapist in the next treatment session, as well as a summary of the content of the treatment session. Moreover, in the UCPP, more than in the CPP, parents are kept informed of the treatment of their children (including short videofragments) and the topics/skills they learn (including a summary of the content of the child sessions). In this way, we tried to ensure that the parents reinforce the skills practiced by the child at home. Thus, in the UCPP the parents have a more central role in the transfer of training, whereas in the CPP this more central role falls to the teachers.

With regard to the content of the parent sessions, we added a session (the second one) devoted to providing structure (i.e., order in the child's room, regularity in routine activities, and clear and simple rules). With regard to the content of the child sessions, we added the following elements: basic communication skills, a 'stop and think' method (because of DBD children's impulsivity), a keyword consisting of the first letter of four types of responses to social problems (leaving, asserting, fighting, seeking adult assistance), and problem-solving in relation to conflicts with parents. The CPP child sessions 21, 22 and 23 (making videotape) were eliminated. This appeared to be too difficult for the patient population, beside which we wanted to restrict the total number of sessions.

The CPP is conducted at the children's school, whereas the UCPP was conducted at the institutions collaborating in this study, where the DBD children were recruited. In the UCPP the school context was not included in the treatment in any other way. Besides the practical reasons for not including the teachers, such as expense of time and money in the context of this study, we originally thought that omitting the teachers from treatment would give us one source for outcome measures which would be blind to the content of the therapy. However, during the course of the study, we discovered that in the 'Care as Usual' condition, teachers were often informed by therapists as a matter of course or even included in the treatment. Moreover, some parents of the UCPP-condition personally kept the teacher informed of their child's progress, so that teachers knew more about the treatment than we expected.

4.4.2 Utrecht Coping Power Parent Component

The adapted form of the parent component consists of 15 sessions. The parental groups consisted of 4 to 8 parents, depending on whether or not there are two parents/caretakers in the family. The duration of the parental sessions is one and a half hours. After the first three weekly sessions, the other remaining 12 sessions with the parents are scheduled every second week (later on, sometimes once every three weeks).

Each parental session is conducted in the same strict canvas (for some examples see Appendix K). Firstly, we look back at the former session, guided by the discussion of parents' experience of the 'homework assignment' (i.e., exercises in the use of the formerly learned parenting skills in every day life). Following this, the topic(s) of that specific session are raised. Besides a brief theoretical explanation of the concept, modeling is employed through actual practice by the therapists during the session or watching a videotape fragment. In all, 8 videotape fragments (related to observing, rewarding, praising, instructing (2x), ignoring, using time-out and problem-solving) are shown. We also discuss the actual parenting practices of the parents and use 'role playing' (e.g., actual practicing by the parents in labeling the breaking of a behavior rule, or praising and rewarding some imagined action of the child). The topics are briefly written in a summary, which is gone through by one of the therapists. Then the new 'homework assignment' for the next two weeks is explained. Summary and 'homework assignment' are taken home by the parents.

Parents are taught the basis principles of behavior, making agreements with their child regarding rules and how to handle these rules consistently, besides creating order and regularity (session 1 and 2). They are taught to monitor their child, i.e., to keep abreast of what the child is doing and with whom, when he or she left the house (session 3). In order to give the parents a more differentiated and complete perception of the behavior of their child, we teach them the skills of observing (session 4). In session 5, much attention is given to how to give instructions to the child: simple, unambiguously formulated, making eye contact, being physically close and using a convincingly tone of voice. In session 6 the parents learn to praise their child directly once the child begins to comply. Not only should socially desired behavior be praised (and rewarded) but also giving up undesirable behavior. Concepts and techniques for parents to apply following their children's non-compliance, rule violations and other disruptive behavior are discussed and practiced (in session 7, 8 and 9), e.g., ignoring minor disruptive behavior, removing a privilege and using time-out. Besides managing behavior outside the home (session 10), there is a session dealing with stress management and taking care of oneself (session 11). We then introduce the problem-solving theory (more or less at the same time that this theory is introduced into the child component) with regard to family problem-solving and practice the skills involved (session 12 and 13). Finally, attention is paid to building family cohesion through positive activities and communication (session 14). In session 15 we evaluate the treatment with the parents.

4.4.3 Utrecht Coping Power Child Component

The child component consists of 23 weekly sessions. During school holidays no treatment is given. The mean duration of the treatment is thus nine months. Child treatment groups consist of 4 children, in the age of 8 to 12 years, with a minimal IQ of 80. The duration of the child sessions is one and a quarter hours.

Each session is conducted in the same strict canvas:

1. Reviewing the content of the former session
2. Discussing the homework assignment (called the 'week-assignment') in two subgroups
3. Introducing the (new) topic(s) of the specific session: discussing, practicing etc.
4. Reading the summary of this session
5. Explaining the new week-assignment
6. Playing a game involving all group members
7. Giving individual and group-awards
8. Closing the session

Some examples of point 3, 4 and 5 are given in Appendix L.

In the first session the therapists explain the aim of the group sessions. Group rules are discussed and laid down, and after selecting their group name, the children sign a group-contract. In the second session basic communicating skills are handled. Session 3 and 4 deal with the recognition of feelings, session 5 specifically addresses the recognition of the emotion anger. This is followed by three sessions concerning more and less adept ways of handling anger. In session 9 the scream 'Stop and Think' (Kendall & Braswell, 1993) is introduced – this being the starting point of reflective problem-solving - and the five steps in social problem-solving are dealt with.

- a. What is the problem? (problem identification)
- b. What solutions can you think of? (generating solutions to the problem)
- c. What will be the consequences of these solutions? (identifying consequences of each solution)
- d. Choose the best solution. (choosing the best solution based on the consequences)
- e. Execute this solution and evaluate whether it was a satisfactory solution. (implementing the solution)

Each step is handled in the following sessions (10 to 15). Considerable attention is paid to problem-recognition (we use the sign of 'holding a hand upwards' to support the problem-recognition moment), because this is where problem-solving begins: without problem recognition there can be no reflective problem-solving (Matthys et al., 1999). During the sessions we try to exercise these skills as much as possible 'in vivo'. Every time a problem occurs between the children or between the therapist and a child, someone screams 'Stop and think' and then the process of problem-solving begins. The use of these problem-solving skills in everyday situations is the topic of session 16 to session 21: how to handle a conflict with a grown-up (e.g., father, mother or teacher), or with a brother or sister, how to make first contact with another child, how to make friends, how to negotiate in playing with friends, how to resist the pressure from another child to do something you do not want to do. In session 22 all topics of the former sessions are briefly repeated and in session 23 we look back and close the intervention.

All child and parental group sessions are videotaped. This videotaping has several reasons. Some videotapes of the child sessions need (according to the protocol) to be partly shown in the parental group. Moreover, all videotapes need to be available for random selection by the supervisors to check adherence to protocol. Finally, videotapes are used to support the supervision process, e.g., questions about the grouping process or attitudes can be easily illustrated by showing the supervisor the video.

4.4.4 Therapists and treatment integrity

There were three main therapists, all women, each of them with a masters degree in psychology but with no previous psychotherapeutic experience. All the experience they had was based on the specific training for the Utrecht Coping Power Program treatment. This training was given at Vosseveld with children in in-patient and day-treatment. All three inexperienced therapists began by going over the manuals and asking questions to a behavioral therapist. They then began conducting their first therapy group as a co-therapist together with a main therapist, using the treatment manuals as a pilot (see also section 4.4.1). With two of the three therapists (when they were in-training), the main therapist was a behavioral therapist; with one therapist 'in-training', the main therapist was one of the trained but 'inexperienced' therapists (who had experience as a co-therapist) while the behavioral therapist was sitting behind the one-way screen. As a supervisor, the behavioral therapist gave feedback (during and) after every session. While this first therapy group was still running, a second therapy group started, in which the tables were turned. The co-therapist became the main therapist in this second therapy group. After finishing both therapy groups, the therapists were thought to be ready to conduct the manualized Utrecht Coping Power Program at the outpatients' clinic centers (included in this study) as main therapists.

In the study, every treatment group had two therapists: one main therapist and one co-leader. These remained the same for both the child and the parental component. The co-leader was a pre-graduate student in clinical child psychology or pedagogy. All co-leaders had received the same training before participating in the treatment. After going over the manuals (and asking questions about it), the co-leader watched all the group sessions on tape (or live behind a one-way screen). In addition to these more general preparations, every session was discussed in advance each week with the main therapist, together with weekly feedback regarding the functioning of the co-leader in the former session(s).

The main therapist (with the co-leader) received supervision throughout the treatment at regular weekly meetings. Supervision consisted of discussions related to the clinical management of individual participants and groups; parts of the videotapes of the group sessions were reviewed when necessary. There were two supervisors available - a child psychiatrist and a clinical psychologist - who took turns in supervising the therapists, i.e., when a therapist started a new treatment group the supervisor was alternated.

In addition to supervising the process and any problem that might arise, both supervisors had the task of checking that the therapists adhered to the protocol, i.e., that the procedures were carried out as intended. During the supervision hours this was a constant factor which needed to be kept in mind. Moreover, one of the supervisors (and one therapist) also randomly picked videotapes of group sessions for integrity checks.

During the study, the three main therapists held weekly meetings to discuss practical matters, in which they often took the opportunity to discuss their actual experiences with respect to the co-leaders or with respect to the families. This was thus a regular moment for personal feedback, from comparable trained therapists.

The detailed treatment manuals, the standardized materials, the comparable training of the therapists, the supervision, the weekly feedback from therapist and co-leader, besides the regular meetings of all the main therapists, with additionally integrity checks, all ensure that the treatment integrity is high.

Descriptives and pre-posttreatment effectiveness analyses

5.1 Introduction

The aim of this study was to assess the effect of a psychotherapeutic (manual) program for the treatment of DBD children in outpatient clinics. Specifically, we wanted to find out whether the combination of two behavioral methods (parent management training and social problem-solving skills training for children, see chapter 4), that has been proven to be efficacious in the treatment of DBD children in so-called research conditions (research therapy), is also effective in everyday clinical practice (clinic therapy) (Weisz et al., 1995). To study the effectiveness of this combination of methods, we studied the change in scores within each treatment condition (the UCPP- and the C-condition) separately (related to research question 1; section 5.3.1). We then compared the scores between the two conditions (research question 2; section 5.3.2), and investigated the clinical significance of effects (research question 3; section 5.4). We also addressed response shift in section 5.5. In this and the following two chapters the study of pre- to posttreatment period is reported. In chapter 8, the pretreatment to 6-months follow-up period is reported. However, first we report the descriptives of the subjects in the study (section 5.2).

5.2 Subjects in the study

5.2.1 Differences between participants and non-participants

We recruited 116 families of which 77 actually participated. The other 39 families were non-participants: 28 families refused to become involved in the study and the other 11 families were not included for other reasons (e.g., still on the waiting list when the recruitment phase of our study ended, or eventually not meeting the inclusion criteria). The 28 children and families who were pre-randomized but eventually refused to participate in the study were compared with those who did participate ($\alpha = 0.05$) with regard to various relevant and available data (e.g., sex, comorbidity with ADHD, schooltype; see also Table 5.1). On all measures, those who refused to participate were no different from those who did.

Table 5.1 Characteristics of the participants and refusers

Measure	Participants	Refusers	t-value	p-value
	N = 77 M (SD)	N = 28 M (SD)		
Age	10.14 (1.25)	10.13 (1.55)	0.04	0.971
IQ (WISC-RN)	100.05 (12.31)	96.50 ^a (10.81)	1.22	0.224
CBCL				
Externalizing	74.32 (7.23)	75.82 ^a (7.20)	-0.86	0.394
Social Economical Status :				
Education mother	3.86 (1.55)	3.43 ^b (1.65)	1.13	0.260
Employment mother	3.06 ^c (1.10)	3.00 ^d (1.55)	0.16	0.871
Education father	3.82 ^c (1.74)	3.54 ^f (2.02)	0.64	0.526
Employment father	3.48 ^e (1.45)	3.44 ^h (1.37)	0.10	0.921

^a N = 22 ^b N = 23 ^c N = 53 ^d N = 16 ^e N = 66 ^f N = 24 ^g N = 65 ^h N = 27

5.2.2 Characteristics of the sample

In this thesis, the sample consisted of 77 children (68 boys and 9 girls) with a mean age of 10.14 years (SD = 1.25) and an average intelligence of 100.05 (SD = 12.31). In this sample of 77 children, 62 children had two caretakers at home (both biological or one biological and one stepparent), 11 children had only one parent (in all cases the mother), and 4 children had parents who both took care of the child part-time, having been divorced. In all these cases outpatient care was thought to be feasible. However, in 6 of the 77 families, the outpatient care was a second best choice. The preferred clinical advice for these six children being inpatient psychiatric treatment or residential care, but this advice was not carried out either because of unwillingness of the parents or unavailability of accommodation. All 77 children were DBD child psychiatric patients. Comparing the clinical diagnosis with the converted DISC diagnosis, we found that in 94.3% of the clinical ODD/CD diagnoses, the DISC also indicated a disruptive behavior disorder (i.e., ODD and/or CD) with or without ADHD. Comparing the presence of comorbidity with ADHD and without ADHD, we found that in 82% of the clinical ADHD diagnoses the converted DISC also indicated comorbidity with ADHD.

In this thesis, all children (and families) who began treatment and attended at least one session were included regardless of whether they finished the treatment or not (the so-called 'intention to treat'). Seventy-seven families met the inclusion criteria, completed pretreatment assessments and began treatment. Of these, 68 (88.3 %) completed treatment. Of the 9 subjects who terminated treatment early (and did not receive further treatment before the second assessment), 4 were from the UCPP-condition, and 5 from the C-condition. The proportions of cases that dropped out of UCPP and C-condition, of those assigned to each

condition were 10.5% and 12.8%, respectively. When we compared children and families who dropped out of treatment with those who remained, three differences emerged from 27 tests. First, those who dropped out of treatment were higher in mean TRF Externalizing Behavior score ($M = 71.22$ vs. 64.62), $Z = -2.03$, $p \leq .05$. Second, the mothers of the families who dropped out had lower employment ($M = 2.29$ vs. 3.17), $Z = -2.16$, $p \leq .05$, and third, had higher Subjective Perception of Parenting Stress ($M = 26.11$ vs. 22.79), $Z = -1.96$, $p \leq .05$.

At pretreatment we compared the two treatment conditions with each other, across some independent subject and demographic variables ($\alpha = 0.05$), to check the matching procedure. For the continuous variables (see Table 5.2) and for the nominal variables (i.e., sex, comorbidity with ADHD, Anxiety Disorders or Dysthymia, schooltype, choice for outpatient care and family type, see Appendix J) we found no significant difference. Especially, we were interested in the use of medication, related to the co-morbidity ADHD. Of the 77 children, 45 had ADHD (in the UCPP-condition 22 children and in the C-condition 23 children). Thirty six children used medication, 32 of them used methylphenidate. Comparing the two conditions, the children using methylphenidate did not differ in their dosage of medication ($M_{UCPP} = 22.31$ mg., $SD = 8.32$; $M_C = 21.13$ mg., $SD = 5.07$, $t = -0.46$, $p < 0.66$).

Table 5.2 Sample Characteristics: Means and Standard Deviations (SDs) for the Utrecht Coping Power Program (UCPP-condition) and the Care as Usual (C-condition)

Measure	UCPP-condition	C-condition	t-value	p-value
	N = 38 M (SD)	N = 39 M (SD)		
Age	9.91 (1.25)	10.36 (1.21)	1.607	0.112
IQ (WISC-RN)	100.45 (12.11)	99.67 (12.65)	-0.276	0.783
CBCL	74.58 (6.40)	74.08 (8.03)	-0.303	0.763
Externalizing				
D2	2.89 (1.18)	3.13 (1.30)	0.824	0.413
Attention-concentration				
Social Economical Status				
Education mother	3.66 (1.42)	4.05 (1.65)	1.119	0.267
Employment mother	3.00 ^a (0.90)	3.12 ^b (1.30)	0.394	0.696
Education father	3.44 ^c (1.72)	4.18 ^d (1.71)	1.747	0.085
Employment father	3.16 ^e (1.51)	3.79 ^e (1.34)	1.788	0.079

^a N = 28 ^b N = 25 ^c N = 32 ^d N = 34 ^e N = 33

We also compared the participants in the two treatment conditions at pretreatment on the primary and secondary outcome measures ($\alpha = 0.05$). On the primary outcome measures, no significant differences were found. On the secondary outcome measures, we found one significant difference at pretreatment between the UCPP-condition and the C-condition: the mothers in the UCPP-condition had lower Psychoneuroticism scores than the mothers in the C-condition ($M_{UCPP} = 123.78$, $SD = 25.09$; $M_C = 141.76$, $SD = 43.55$, $t = 2.18$, $p < 0.04$) (see also Table 5.3.A and Table 5.3B for means and standard deviations of the primary and secondary outcome measures at pre- and posttreatment).

5.3 Effectiveness of treatment

In the whole group, we correlated the variables related to disruptive behavior with the MESSY Prosocial Behavior variable. At pretreatment no correlation was significant and they ranged from $-.20$ to 0.11 . At posttreatment and 6-months follow-up we correlated the difference scores of these disruptive behavior variables with the difference score of the MESSY Prosocial Behavior. At posttreatment correlations ranged from $-.02$ (non-significant) to $-.33$ (significant), and at 6-months follow-up they ranged from $-.09$ (non-significant) to $-.37$ (significant). Thus, these outcome measures seem to address two different constructs.

5.3.1 Within-group comparisons

The research question (1) whether treatment in clinical practice is effective was first assessed by comparing within-group changes from pretreatment to posttreatment, as noted in Table 5.3A for the primary outcome measures and in Table 5.3B for the secondary outcome measures.

- *Results of primary outcome measures*

At posttreatment, subjects in both conditions significantly improved on all primary outcome measures. In the UCPP-condition, ESs were large for the PDR Overt Aggression, PDR Oppositional Behavior, IAB Overt Antisocial Behavior, and CBCL Externalizing Behavior (see Table 5.3A). The remaining three ESs were small: for IAB Covert Antisocial Behavior, TRF Externalizing Behavior at School, and MESSY Prosocial Behavior. In the C-condition we found two medium ESs: for IAB Overt Antisocial Behavior and CBCL Externalizing Behavior. The remaining ESs were small.

- *Results of secondary outcome measures*

At posttreatment, the subjects in the UCPP-condition improved significantly on the NVOS Perception of the Parenting Stress and on the NVOS Judgement of the Parenting Situation, except for father's Perception of Parenting Stress. However, the subjects in the UCPP-condition did not improve significantly on the SCL-90 Psychoneuroticism of the parents. At posttreatment, the subjects in the C-condition also improved significantly on the NVOS Perception of the Parenting Stress and on the NVOS Judgement of the Parenting Situation, except for father's Perception of Parenting Stress. However, the subjects in the C-condition also did not improve significantly on the SCL-90 Psychoneuroticism of the parents. In the UCPP-condition, the effect sizes of the secondary outcome measures ranged from 0.04 to 1.33 (i.e., near zero to very large), in the C-condition the effect sizes ranged from 0.14 to 0.61 (i.e., small to moderate).

On the basis of the results of the primary outcome measures related to posttreatment, we can conclude that there are changes in outcome variables within each condition over time: the disruptive and prosocial behaviors of the children in the UCPP and in the C-condition changed over time as expected. Moreover, related to ESs we found that in the UCPP condition changes were small to large, in the C-condition changes were small to medium.

Table 5.3A Intervention Effect: Within-group analysis of primary outcome measures

Measure	Utrecht Coping Power Program (N=38)				Care as Usual (N = 39)			
	Pretreatment M (SD)	Posttreatment M (SD)	t-value	ES	Pretreatment M (SD)	Posttreatment M (SD)	t-value	ES
Parent Daily Report								
Overt Aggression	2.90 (1.51)	1.90 (1.38)	4.92***	0.69	2.46 (1.44)	2.06 (1.40)	2.11*	0.28
Oppositional Behavior	3.14 (1.31)	2.30 (1.40)	3.43***	0.62	2.84 (1.40)	2.44 (1.50)	2.01*	0.28
Interview for Antisocial Behavior								
Overt Antisocial	54.89 ^a (11.63)	46.16 ^a (13.52)	5.51***	0.69	53.67 (12.40)	46.77 (15.07)	3.79***	0.50
Covert Antisocial	14.30 ^a (4.33)	13.05 ^a (3.84)	2.05*	0.31	15.31 (5.71)	13.69 (5.34)	3.22**	0.29
Child Behavior Checklist								
Externalizing Behavior	74.58 (6.40)	69.61 (8.41)	4.64***	0.67	74.08 (8.03)	69.23 (9.89)	3.47***	0.54
Teacher Report Form								
Externalizing Behavior	64.89 (9.91)	62.42 (10.71)	1.91*	0.24	65.87 (8.83)	63.13 (11.01)	1.89*	0.28
Matson Evaluation of Social Skills with Youngsters								
Prosocial Behavior	55.51 ^a (11.52)	58.30 ^a (11.73)	1.90*	0.24	53.95 (12.83)	56.90 (12.86)	1.88*	0.23

^a N = 37 ; * p ≤ .05, ** p ≤ .01, *** p ≤ .001

Note. a positive value indicates an improvement (e.g., decrease in symptoms or increase in prosocial functioning)

Table 5.3B Intervention Effect: Within-group analysis of secondary outcome measures

Measure	Utrecht Coping Power Program (N=38)				Care as Usual (N = 39)			
	Pretreatment M (SD)	Posttreatment M (SD)	t-value	ES	Pretreatment M (SD)	Posttreatment M (SD)	t-value	ES
Nijmegen Questionnaire On Child-Rearing Situation								
Mother's Perception of Parenting Stress	22.32 ^a (3.71)	20.81 ^a (4.40)	2.30*	0.37	24.06 ^a (4.95)	22.49 ^a (5.48)	2.48**	0.30
Mother's Judgement of Parenting Situation	5.57 ^a (0.93)	3.89 ^a (1.52)	6.44***	1.33	5.59 ^a (1.38)	4.70 ^a (1.53)	3.90***	0.61
Father's Perception of Parenting Stress	21.03 ^b (3.81)	20.58 ^b (4.48)	0.77	0.11	21.16 ^c (4.61)	20.46 ^c (4.54)	1.53	0.15
Father's Judgement of Parenting Situation	5.16 ^b (1.24)	4.10 ^b (1.62)	3.13**	0.73	4.94 ^c (1.39)	4.24 ^c (1.52)	2.69**	0.48
SCL-90								
Mother's Psychoneuroticism	123.78 ^a (25.09)	122.73 ^a (28.45)	0.26	0.04	141.76 ^a (43.55)	135.59 ^a (44.26)	1.11	0.14
Father's Psychoneuroticism	122.94 ^b (29.08)	116.55 ^b (25.21)	1.13	0.23	120.12 ^c (22.53)	112.88 ^d (21.90)	1.63	0.23

^a N = 37 ^b N = 31 ^c N = 33 ^d N = 32; * p ≤ .05, ** p ≤ .01, *** p ≤ .001

Note. a positive value indicates an improvement (e.g., decrease in symptoms)

5.3.2 Between-group comparisons

The research question (2) whether the experimental condition leads to greater changes than the control condition was examined by computing pre-post difference scores and making between-group comparisons at posttreatment.

- *Results of primary outcome measures*

For the factor PDR Overt Aggression we found a significant improvement for the UCPP condition, compared with the C-condition, at posttreatment. For the other primary outcome measures we found no significant difference in improvement between both conditions (see Table 5.4A). The computed between-group effect sizes (ESs; see Table 5.4A) showed that, at posttreatment, the ESs of the PDR were clearly in favor of the UCPP-condition: the change in Overt Aggression was half a standard deviation different between both conditions (i.e., the ES was moderate); the ES of Oppositional Behavior was small. The ESs of the IAB were small and of varying sign, whereas the other ESs indicated no differences between the two conditions. The *composite-between group ES for disruptive behavior* was 0.18 at posttreatment, indicating that with respect to disruptive behavior there was a small difference between both conditions in favor of the UCPP-condition.

- *Results of secondary outcome measures*

At posttreatment the mothers of the UCPP-condition had a more positive Judgement of their Parenting Situation than the mothers in the C-condition (NVOS; Table 5.4B). On all the other outcome measures we found no significant differences between the mean improvement in UCPP-condition and the mean improvement in C-condition. Two computed between-group-ESs (see also Table 5.4B) were at posttreatment in favor for the UCPP-condition: the NVOS Parental Judgement of the Parenting Situation by mothers (ES = moderate) and by fathers (ES = small). By contrast, the ES in SCL-90 Psychoneuroticism of the mothers was in favor of the C-condition (ES = small).

Based on ESs and, specifically, the composite ES we can conclude that the effectiveness of the UCPP-condition is somewhat larger than the effectiveness of treatment in the C-condition.

Table 5.4A Intervention Effect: Differences between mean improvement of primary outcome measures in Utrecht Coping Power Program and in Care as Usual

Measure	Pre-Posttreatment	
	<i>t</i> -value	ES
Parent Daily Report		
Overt Aggression	2.18*	0.49
Oppositional Behavior	1.40	0.32
Interview for Antisocial Behavior		
Overt Antisocial	0.76	0.17
Covert Antisocial	-0.48	-0.11
Child Behavior Checklist		
Externalizing Behavior	0.07	0.02
Teacher Report Form		
Externalizing Behavior	-0.14	-0.03
Matson Evaluation of Social Skills with Youngsters		
Prosocial Behavior	-0.08	-0.02

Note: a positive value indicates a larger improvement (e.g., decrease in symptoms or increase in prosocial functioning) of the Utrecht Coping Power Program compared with the Care as Usual

* $p \leq .05$

Table 5.4B Intervention Effect: Differences between mean improvement of secondary outcome measures in Utrecht Coping Power Program and in Care as Usual

Measure	Pre-Posttreatment	
	t-value	ES
Nijmegen Questionnaire on Child-Rearing Situation		
Mother's Perception of Parenting Stress	-0.08	-0.02
Mother's Judgement of Parenting Situation	2.26*	0.53
Father's Perception of Parenting Stress	-0.36	-0.09
Father's Judgement of Parenting Situation	0.87	0.21
SCL-90		
Mother's Psychoneuroticism	-0.74	-0.17
Father's Psychoneuroticism	-0.29	-0.07

Note: a positive value indicates a larger improvement (e.g., decrease in symptoms) of the Utrecht Coping Power Program compared with the Care as Usual

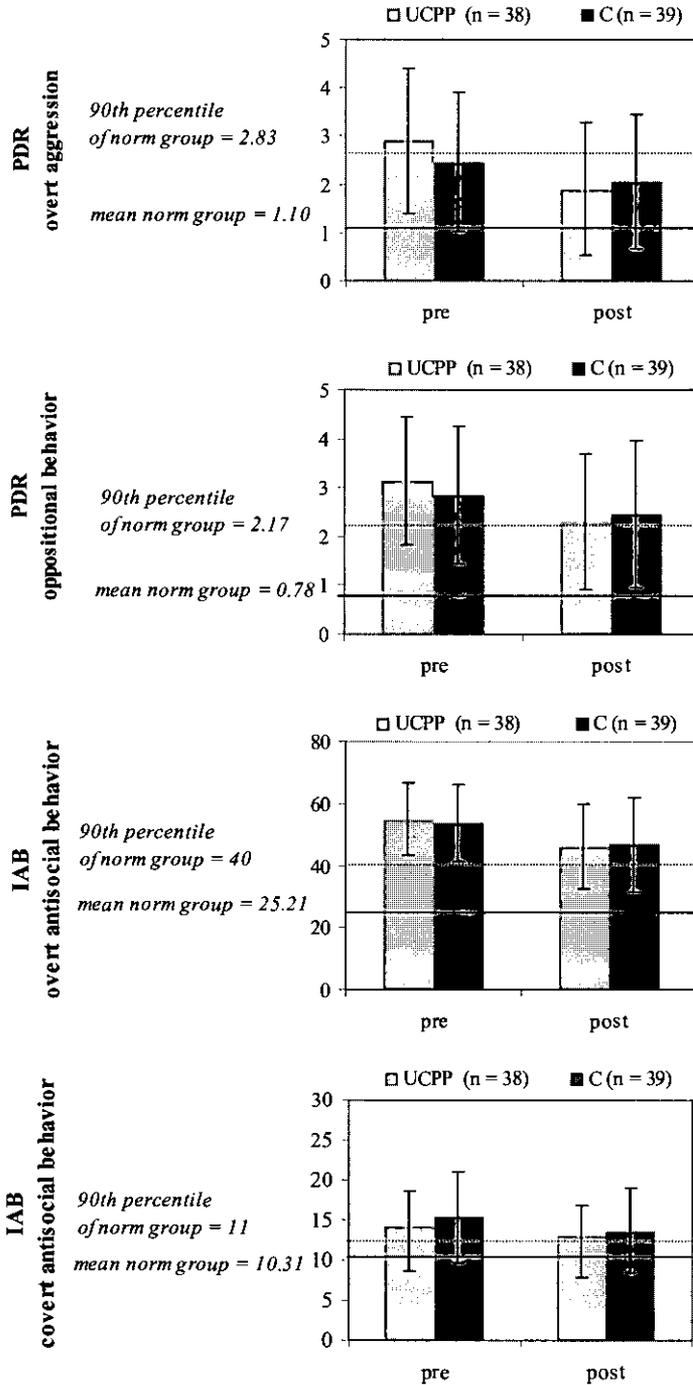
* $p \leq .05$

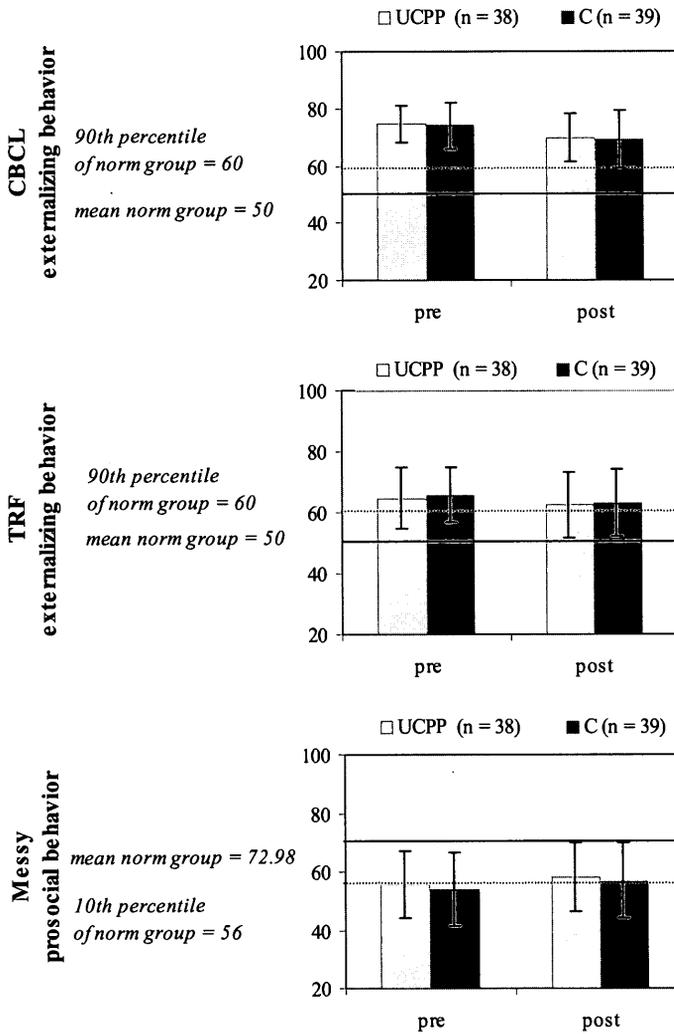
5.4 Clinical significance

We also studied whether the changes in the outcome variables within each condition over time lead to clinically significant effects within the UCPP- and the C-condition (research question 3). We were therefore interested to see whether the improvements in terms of the reduction of problematic behaviors and/or increase of prosocial behavior changed to within normative levels, and whether this clinical significance was different between the two conditions. The clinical impact of treatment was examined by two methods used by Kazdin (1992; Kazdin et al., 1992) and described in chapter 2, section 2.6. In studying the clinical impact based on a normative range, the 90th percentile of the scores of a non-clinical population (see chapter 3) on each disruptive behavior measure were used as cutoff scores, (and the 10th percentile of the scores on the prosocial behavior measure). For the CBCL and TRF the cutoff scores were 63 (Achenbach, 1991a). For the PDR, IAB and MESSY we computed the cutoff scores based on the data obtained from the non-clinical sample (see chapter 3). For PDR Overt Aggression, the cutoff score is 2.83, for PDR Opposition Behavioral 2.17, IAB Overt Antisocial 40, and IAB Covert Antisocial 11. For the MESSY Prosocial it is 56. These cutoff scores are the upper limits (or for the MESSY the lower limits) of the normal range.

The first question of interest was the extent to which changes achieved among the DBD children were within the non-clinical ranges. To address this question, scores that defined the boundary of the normal range were used as criteria to evaluate performance on the primary outcome measures. In Figure 5.1 we present the mean scores on the primary outcome measures, at pretreatment and posttreatment, in relation to the normative mean and the 90th percentile scores (= cutoff scores) of the norm group. For the PDR Oppositional Behavior, IAB Overt Antisocial and Covert Antisocial, and the CBCL and TRF Externalizing Behavior scores, we found that the mean scores of neither condition entered the non-clinical range at posttreatment. For the PDR Overt Aggression and the MESSY Prosocial Behavior we found that in both conditions the group means reached the non-clinical range at posttreatment.

Figure 5.1 The pre- and posttreatment group means and standard deviations of both clinical samples, and the 90th percentile scores of the non-clinical sample on the seven primary outcome measures





To examine the improvement of individual children, we computed the proportion of cases that fell within the normative range for the primary outcome scores (see Table 5.5). Chi-square statistics were computed to examine differences in numbers of children per treatment condition entering the normal range. For the measures on disruptive behavior, we found that the differences between the two conditions were in the same direction as we expected (see research question 3). For two variables these differences were significant by one-tailed testing: PDR Oppositional Behavior ($\chi^2(1) = 3.11, p < 0.08$) and IAB Overt Antisocial ($\chi^2(1) = 2.82, p < 0.10$). As expected, the proportion of UCPP-cases that fell within the normal range at posttreatment on these variables was higher than the proportion of C-cases.

Table 5.5 Clinical Impact of the intervention: Proportion of children within the range of non-clinical samples for the primary outcome measures at posttreatment

Measure	Utrecht Coping Power Program			Care as Usual		
	Pretreatment Clinical range	Posttreatment Non-clinical range		Pretreatment Clinical Range	Posttreatment Non-clinical range	
	N	N	%	N	N	%
Parent Daily Report						
Overt Aggression	21	13	61.9	20	9	45
Oppositional Behavior	30	15	50	29	8	27.6
Interview for Antisocial Behavior						
Overt Antisocial	34	10	29.4	32	4	12.5
Covert Antisocial	30	8	26.7	30	8	26.7
Child Behavior Checklist						
Externalizing Behavior	36	6	16.7	34	5	14.7
Teacher Report Form						
Externalizing Behavior	19	10	52.6	27	13	48.1
Matson Evaluation of Social Skills with Youngsters						
Prosocial Behavior	19	5	26.3	24	9	37.5

Note. Within the normal range refers to below the 90th percentiles derived from normative data for the primary outcome score for disruptive behavior (or above the 10th percentile for the prosocial behavior). Any case with a pretreatment score already within the normal range (on that specific measure) was excluded from the calculations of the proportions

In general, we can say that, in both conditions, the group means return to within normative range with respect to some outcome measures. Comparing the two conditions in their clinical significance of treatment, we found that with respect to two disruptive behavior variables relatively more children in the UCPP-condition reached the normal range, than in the C-condition.

5.4 Response shift

As a result of a training or treatment, subjects often develop a new understanding of the concept being measured. If treatment-effects are assessed through comparison of pretest and posttest self-reports, the actual effects may be affected by a 'response-shift-bias' (Sprangers & Hoogstraten, 1991). Treatment effects may therefore be assessed as well, or even better, by comparisons of the 'retrospective' pretest (at posttreatment; so-called then-test) and posttest self-reports. In the case of an effective treatment, subjects will interpret the posttraining measures, i.e., post- and then-tests, in the light of the training content. To the degree that there is a response shift, inclusion of a then-test may provide a more sensitive assessment of subjects' perspective on personal change. In this respect, the retrospective pretest-posttest design will provide a more thorough picture of the training's total impact (Sprangers, 1988). However, retrospective designs are known to be affected by subject bias, as were conventional designs are known. In this same light of retrospectivity, it is important to note that, in contrast to a recall measure, a then-test does not ask respondents to recall their earlier ratings but rather to recall the conditions that existed before the treatment began (Sprangers,

1988). Although there are weaknesses to the design, the retrospective pretest-posttest designs also add a valuable dimension to the evaluation tools.

5.5.1 Subjects and measures

We investigated the possible changes of response in a subsample of the original 77 study-subjects. The subsample consisted of 61 primary caretakers (57 mothers and 4 fathers). Comparing the 'response shift sample' with the other 16 families on the outcome measures used in this check, no significant differences were found, nor did both samples differ on age, estimated IQ, SES, or clinical diagnosis. For this check we used three primary outcome measures i.e., the PDR, the IAB and the CBCL and one mediator-outcome measure (the APQ). For the PDR we used a different variable than in the comparisons of the former sections i.e., the number of indicated items as referring to problems for the particular child (34 max; PDR Problem Score). Further, we used the IAB Overt and Covert Antisocial Behavior, and the CBCL Externalizing Behavior, and we assessed four parenting skills by the APQ. In Appendix M, the means and standard deviations of this response shift sample were noted at pretreatment, then-test and posttreatment.

5.5.2 Procedure and results

At posttreatment, we asked the parent to look back at pretreatment and fill in the questionnaires on the basis of his/her knowledge at the time of posttreatment. Thus, at the then-test, subjects were asked how they currently perceived the problem behavior of their child and their own parenting skills to have been, prior to the treatment. After filling in these then-questionnaires, the parent received the questionnaires related to the present situation (i.e., posttreatment).

Comparing the whole sample between pretreatment and then-test-scores, we found no significant difference. We also compared between pretreatment and then-test scores per condition, and we found no significant difference either. In Appendix M we noted within each condition the change from pretreatment to posttreatment as well as the change from then- to posttreatment. Using the then-test data, a few more significant changes appeared, than using the pretreatment data, but since we found that the pretreatment and then-test scores did not differ significantly, these differences could be neglected.

Thus, in the present study there was no response shift bias and there was no evidence for the possibility that pre- minus posttreatment difference scores were affected by response shift bias. As a result of this check, our conclusions concerning the effectiveness of treatment are more reliable than they would otherwise have been.

Moderating and mediating factors

6.1 Introduction

In the previous chapter we compared the effectiveness of the UCPP intervention with the effectiveness of the Care as Usual. In this chapter we will study *the way* the interventions have been effective. The processes that are responsible for (mediate) therapeutic change are the 'effective ingredients' of treatment, but these have hardly been explored (Kazdin & Weisz, 1998). Thus, we investigated the relationship between the mediating factors (i.e., the parenting skills and the children's social problem-solving skills) and treatment outcome. In all analyses we have taken into account the influence of possible moderating factors (e.g., severity of the disruptive behavior, comorbidity with ADHD). In doing so we wanted to gain more insight into whether the effects were the consequences of the method used. We will first describe the association between mediators and outcome constructs in our study (section 6.2). Then we will describe the influence of the moderators (section 6.3).

6.2 The association between mediators and outcome constructs at posttreatment

Formally in this type of research, mediation is considered present if the following stipulations are met (Baron & Kenny (1986): (a) treatment condition is significantly associated with a mediator; (b) treatment condition is significantly associated with the outcome variable; (c) the mediator is significantly associated with the outcome variable; and (d) the impact of treatment condition on the outcome variable is less after controlling for the mediator. However, these stipulations only have meaning if one of the two treatment conditions has more effect than the other.

Until now, only one study (conducted by Eddy and Chamberlain, 2000) has examined the mediation of the effect of behavior therapy on antisocial behavior and delinquency. Eddy and Chamberlain (2000) compared two methods, one of which had more effect than the other. In their study, the influence of parent management skills and the association with delinquent peers on youth antisocial behavior were examined within the context of a randomized clinical trial. The mediators (i.e., the parent management skills and deviant peer association) were measured halfway between the first and second assessment. Although the moment of assessment of the mediators precedes the assessment moment of outcome, this gives no guarantee for the moment on which the behavior actually was influenced. Eddy and Chamberlain (2000) combined the mediators and analyzed it as a single concept. A significant relation was found between this mediator-concept and the condition (stipulation a) and a significant relation was found between the mediator and the second measurement (stipulation c). The relation between condition and second measurement was also significant (stipulation b). The model in which the path coefficient between condition and second measurement was set to zero (in order to study more specifically the role of the mediators related to stipulation d) was found to fit. Since all four stipulations of Baron and Kenny (1986) were met, Eddy and Chamberlain (2000) concluded that the decrease in adolescent antisocial behavior was the consequence of an increase in parenting skills and a decrease of deviant peer involvement.

However, it should be noted that the goodness-of-fit index (GFI) was not particularly high and that this was probably the result of the small sample ($N=53$). Eddy and Chamberlain (2000) thus warned that the results should be interpreted cautiously. They remarked that, following Tanaka (1987), a ratio of 5 to 1 (i.e., the number of cases per parameter) should be aimed at. Moreover, for reliable outcomes with respect to LISREL analyses, several hundreds of subjects should be used (Boomsma, 1983). Thus, with a small sample size the number of variables should be limited, because relatively many estimations increase the risk of instability in the results. The sample size in our study ($N=77$) was larger but still small for LISREL analyses. We therefore needed to be careful with the interpretations of our results. Moreover, we tried to reduce the number of variables as much as possible. Nevertheless, we decided to conduct LISREL analyses, because the mediating role needs to be investigated and it will be very difficult to get a larger sample related to this subject of study. Path analyses were checked by additional analyses in which every mediating variable was compared between the two conditions based on difference scores at posttreatment (see Appendix N).

6.2.1 Path model

In our study, we examined the mediation of the effect of therapy on disruptive behavior and prosocial behavior, by LISREL analyses (see Figure 6.1). We compared two *treatment conditions* (nr.1 in Figure 6.1) and studied the influence of parenting skills of the parents and social problem-solving skills of the children (i.e., the parent and child mediators; see chapter 1 for the theoretical background) on disruptive and on prosocial behavior. These *mediators* were assessed at pretreatment and at posttreatment (and not halfway between first and second assessment). These pre- and posttreatment mediators were both incorporated into the model (see Figure 6.1, nr. 2 and 3). As mentioned earlier, Eddy and Chamberlain (2000) presented their mediators as a single concept. We think this is incorrect, because only apparently related variables should be clustered within a construct. In our analyses, therefore, we did not present all mediators as one construct, but for every mediator we conducted a separate analysis (e.g., 'Positive Involvement', 'Poor Monitoring' etc.; see also Table 6.1 where every column represents one mediator and the related path coefficients). One exception concerned the child-mediator 'Aggressive Response': this is one construct indicated by two variables (i.e., percentage of Aggressive Responses in the ASQ and Aggressive Responses in the SPT; see Appendix J). There are two (favorable) aspects related to including the pretreatment and posttreatment assessments of a mediator in the model: (1) it is possible to check whether the growth in mediators is different for the two conditions (which amounts to checking whether: γ_{31} in the formula in section 6.2.2.1 is significant or not); (2) it is to be expected that a mediator, which is measured at pretreatment and at posttreatment, will at both assessments show a correlation with the same sign with the outcome variable. However, in the regression, with the mediator as independent variable, their path coefficients with the outcome variables may acquire a different sign (Maassen & Bakker, 2001): $\text{Outcome}(t_1) = \beta_{52} * \text{mediator}(t_0) - \beta_{53} * \text{mediator}(t_1) + \gamma_{51} * \text{condition}$ ($\beta_{53} > 0$). If the path coefficients acquire a different sign, we may conclude that outcome is dependent on the change/growth in that mediator.

In the path model we used *two outcome constructs*: *Disruptive Behavior* (nr. 5 in Figure 6.1) and *Prosocial Behavior* (nr. 6 in Figure 6.1). For the construct of Disruptive Behavior we used a multiple indication making the parameter estimations less affected by measurement errors. Because of their high intercorrelations, some subscales of the outcome measures were regarded as indicators for this Disruptive Behavior construct: PDR Overt Aggression, PDR Oppositional Behavior, IAB Overt Antisocial Behavior, IAB Covert Antisocial Behavior and CBCL Externalizing Behavior. The first two are subscales from the same checklist and showed particularly high intercorrelations; in the model this was integrated by setting their error covariance free. The same was applicable to the two subscales of the IAB. The other construct (i.e., Prosocial Behavior) was measured by a single indicator.

Moreover, on the basis of the values of the path coefficients of various *moderators* (see also section 6.3) one moderator variable was added to the model (i.e., severity of the disruptive behavior at pretreatment, nr. 4 in Figure 6.1). The relation of this moderator to the various mediators at pretreatment was studied, and also to the two outcome constructs. There appeared to be no need to assume an additional influence of the moderator on the mediators at posttreatment (i.e., an extra path coefficient γ_{34} was not needed, because this relation seemed to be totally explained by the path through variable 2 (γ_{24})). In this way, the associations between mediators and outcome constructs were stripped of spurious effects caused by this moderator. The residual covariance (in LISREL terms ψ) between the two outcome constructs was also estimated.

6.2.2 Mediation analyses

In our study, condition had little to no relation with the two outcome constructs at posttreatment (stipulation b is not met). This confirmed our findings that the two conditions did not differ significantly in their effect of treatment, measured by the Disruptive Behavior and Prosocial Behavior construct at posttreatment (i.e., differently from the study of Eddy and Chamberlain, 2000, in which one of the two methods was more effective). As expected, setting the path coefficient between condition and outcome constructs at zero (following Eddy and Chamberlain, 2000), had little to no influence on the fit of the model, since this path coefficient was already very low and not significant.

Because one of the four stipulations for mediation (i.e., stipulation b) was not met, we were unable to find support for the mediating role of the analyzed constructs as in the terms of Baron and Kenny (1986) or analogous to Eddy and Chamberlain (2000). In particular, stipulation d was impossible to meet, since stipulation b was not met. However, our analyses may give insight into the operation of the variables (i.e., the relation between mediators and outcome constructs). Henceforth we will discuss the other stipulations (i.e., stipulation a and c), separately for every mediational analysis. Looking at the values of the fit measures (see Table 6.1, RMSEA and NNFI) we found that the models tested had acceptable fit.

6.2.2.1 Parenting skills as parental mediators

Using the Alabama Parenting Questionnaire with both parents separately, we collected data on four parenting skills: Positive Involvement, Poor Monitoring, Inconsistent Discipline and Corporal Punishment.

Mother (N=74): in all analyses with the parenting skills of the mother as mediator, we found non-significant path coefficients between condition and Disruptive Behavior (γ_{51}) or between condition and Prosocial Behavior (γ_{61}) at posttreatment, meaning that the condition was not significantly associated with either of the two outcome constructs. Regarding the *Positive Involvement* of the mother, the scores at posttreatment were different for the two treatment conditions. As expected, in the UCPP-condition, the Positive Involvement of the mother at posttreatment was significantly higher than in the Care as Usual condition (path coefficient $\gamma_{31} = 0.30$; see Table 6.1; mediator(t_1) = β_{32} *mediator(t_0) + γ_{31} *condition, which leads to mediator(t_1)- β_{32} *mediator(t_0)= γ_{31} *condition). Thus, the difference we found in Positive Involvement was dependent on the condition. This finding was confirmed by a t-test of the difference score (i.e., the mothers in the UCPP-condition increased in Positive Involvement whereas the mothers in the C-condition decreased a little; see Appendix N). Moreover, the Positive Involvement at posttreatment was significantly and positively related to the Prosocial construct at posttreatment (β_{63}). Regarding the *Poor Monitoring* of the mother, it should first be mentioned that the scores at pretreatment were significantly different for the two conditions: in the UCPP-condition the monitoring of the mother at pretreatment was significantly better than in the C-condition. This difference disappeared at posttreatment. The Poor Monitoring (at pre- and posttreatment) had no significant relation with the Disruptive and Prosocial construct at posttreatment. Regarding the *Inconsistent Discipline* of the mother,

the scores at posttreatment were different for the two treatment conditions. As expected, in the UCPP-condition the Inconsistent Discipline of the mother at posttreatment was significantly lower than in the Care as Usual condition (path coefficient $\gamma_{31} = -0.18$). Thus, the difference we found in Inconsistent Discipline was dependent on the condition. This finding was confirmed by a t-test of the difference score (i.e., the mothers in the UCPP-condition decreased more in their Inconsistent Discipline than the mothers in the C-condition; see Appendix N). Moreover, more Inconsistent Discipline at posttreatment was related to more Disruptive Behavior and less Prosocial Behavior at posttreatment. As the path coefficients between the mediator and Prosocial Behavior were significant and had a different sign in the regression (β_{62} and β_{63}) we inferred that the decrease of Inconsistent Discipline lead to an increase in Prosocial Behavior. For the *Corporal Punishment* by the mother we did not find any significant path coefficient.

For the parenting skills of the mother, we therefore conclude that in the UCPP-condition mothers report becoming more involved and less inconsistent in their discipline, compared with the C-condition. Positive Involvement appeared to be positively related with the Prosocial Behavior of the child, and less Inconsistent Discipline was related to less Disruptive Behavior and more Prosocial Behavior. We therefore anticipate that the children in the UCPP-condition change in their behavior through the mothers' change in Positive Involvement (i.e., increase) and change in Inconsistent Discipline (i.e., decrease). However, the Disruptive Behavior and Prosocial Behavior at posttreatment did not differ between the two conditions. So the difference in increase of Involvement and in decrease of Inconsistent Discipline was not enough for a difference in Disruptive and Prosocial Behavior at posttreatment between the two conditions.

Father (N = 64): in all analyses with the parenting skills of the father as mediator, we found non-significant path coefficients between the condition and Disruptive Behavior (γ_{51}) or Prosocial Behavior (γ_{61}) at posttreatment, meaning that the condition was not significantly associated with either of the two outcome constructs. Regarding the *Positive Involvement* of the father, no significant path coefficient was found between the treatment condition and Positive Involvement at pre- or posttreatment, nor between Positive Involvement and the outcome constructs. Regarding the *Poor Monitoring* of the father, it should first be mentioned that the scores at pretreatment were significantly different for the two conditions: in the UCPP-condition the monitoring of the father at pretreatment was significantly better than in the C-condition. This difference disappeared at posttreatment. The Poor Monitoring (at pre- and posttreatment) bore no significant relation with the Disruptive and Prosocial construct at posttreatment. Regarding the *Inconsistent Discipline* of the father, the scores at posttreatment were different for the two treatment conditions. As expected, in the UCPP-condition the Inconsistent Discipline of the father at posttreatment was significantly lower than in the Care as Usual condition (path coefficient $\gamma_{31} = -0.30$). Thus, the difference we found in Inconsistent Discipline was dependent on condition. The same was confirmed by t-test of the difference score (i.e., the fathers in the UCPP-condition decreased in Inconsistent Discipline (as hoped for), whereas the fathers in the C-condition increased a little; see Appendix N). However, the Inconsistent Discipline had no significant relation with the Disruptive or Prosocial constructs. For the *Corporal Punishment* by the father no significant path coefficient was found.

For the parenting skills of the father, therefore, we conclude that in the UCPP-condition fathers report becoming less inconsistent in their discipline, compared with the C-condition. However, there was no relation between the Inconsistent Discipline and the Disruptive or Prosocial Behavior of the child at posttreatment. This was also true for all other three parenting skills of the father. So, the actual changes in Disruptive Behavior and/or Prosocial Behavior of the child at posttreatment are not achieved by a change in the parenting skills of father, either in the UCPP-condition, or in the C-condition.

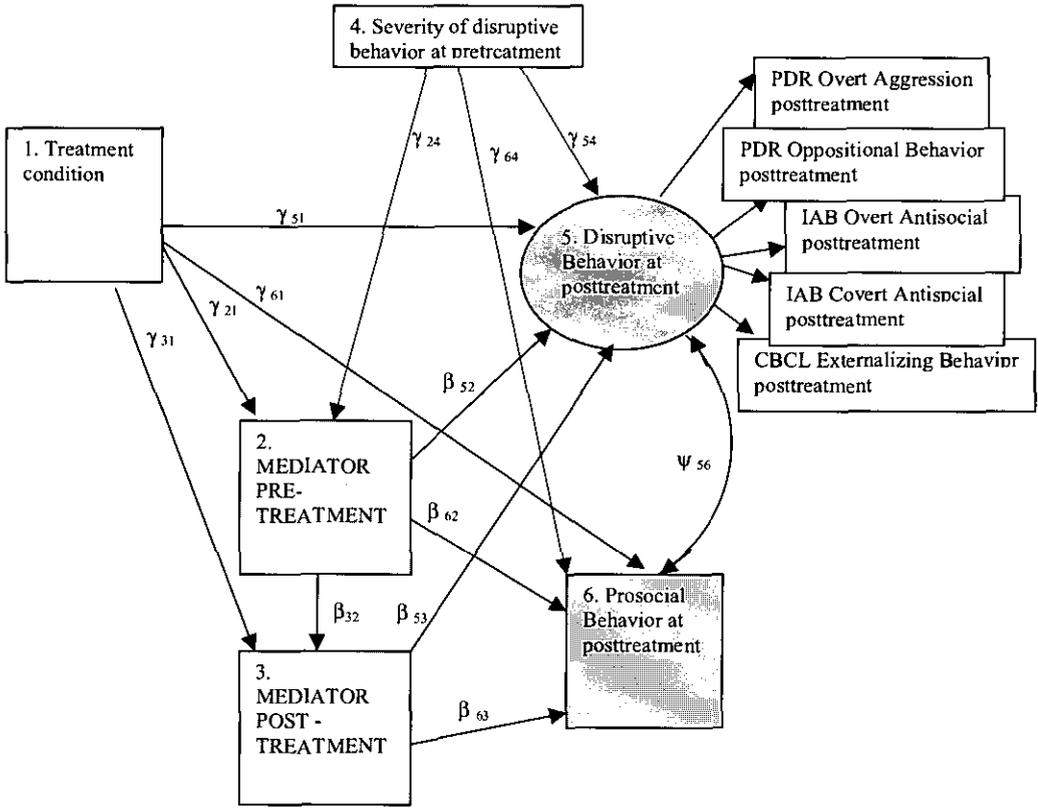
6.2.2.2 Social problem-solving skills of the child as child mediators

Though we wanted to study all relevant child mediators (see Appendix J) we had to exclude several variables because of unreliable and inconsistent outcomes (e.g., high path coefficients but not significant). We therefore analyzed some aspects of *the social problem-solving skills of the child* as mediators. We used two single variables (i.e., *Number of Cues* and *Number of Responses*) and one construct (i.e., *Aggressive Response*, indicated by percentage of Aggressive Responses of the ASQ and of the SPT: see also Appendix J). For these three child mediators, we found that the direct relations between condition and the outcome constructs at posttreatment were not significant (γ_{51} and γ_{61}), nor was the relation between condition and the mediators at pretreatment (γ_{21}) or at posttreatment (γ_{31}) significant. Although not significant, we found (as expected) that in the UCPP-condition, the Number of Responses at posttreatment was higher than in the Care as Usual condition (path coefficient $\gamma_{31} = 0.21$; see Table 6.1). This difference was found significant in the t-test of the difference score (i.e., in the UCPP-condition the Number of Responses increased, whereas in the C-condition the Number of Responses decreased a little; see Appendix N). However, the Number of Responses bore no significant relation with the Disruptive or Prosocial construct at posttreatment. The other two mediators (i.e., Number of Cues and Aggressive Response) also were not significantly related to the Disruptive or to the Prosocial construct at posttreatment (β_{52} , β_{53} , β_{62} , β_{63}).

Thus, for the social problem-solving skills of the child we conclude that in the UCPP-condition the Number of Responses increase as compared with the C-condition. However, the Number of Responses had no relation with the Disruptive or Prosocial Behavior constructs of the child at posttreatment. The actual changes in Disruptive Behavior and/or Prosocial Behavior of the child at posttreatment are not the result of a change in the social problem-solving skills of the child, either in the UCPP-condition, or in the C-condition.

Although we expected that the behavior of the child in the UCPP-condition would alter as a result of changes in all investigated parental- and child mediators, we found that only the Inconsistent Discipline and Positive Involvement of the mother were related with the behavior of the child at posttreatment and that these two mediators differed between the two conditions. We therefore may conclude that there is some evidence that the effectiveness of treatment in the UCPP-condition is achieved by augmenting the Positive Involvement of the mother and decreasing the Inconsistent Discipline of the mother. With Positive Involvement of the mother as mediator in the model, and the severity of disruptive behavior at pretreatment as moderator, 41% of the variation in the Disruptive Behavior construct at posttreatment is accounted for, and 21 % of the variation in the Prosocial Behavior is accounted for. With Inconsistent Discipline of the mother as mediator in the model, 49% of the variation in the Disruptive Behavior construct at posttreatment is accounted for, and 21 % of the variation in the Prosocial Behavior.

Figure 6.1 Mediation path model comparing the UCPP- and C- condition



Note. Mediator pretreatment (2) and mediator posttreatment (3) are the changing variables. Moreover, the outcome construct *Disruptive Behavior* consists of a composite score, based on the highly intercorrelated subscales of the following outcome measures: PDR Overt Aggression, PDR Oppositional Behavior, IAB Overt Antisocial Behavior, IAB Covert Antisocial Behavior and CBCL Externalizing Behavior.

Table 6.1 Estimations of the structural parameters in the mediational path model (see Figure 6.1)

Path		Inv. Moth.	Poor Mon. Moth.	Incon. Discp. Moth.	Corp. Pun. Moth.	Inv. Fath.	Poor Mon. Fath.	Incon. Discp. Fath.	Corp. Pun. Fath.	No Cues	No Resp.	Aggr. Resp.
	N	74	74	74	74	64	64	64	64	71	71	71
	Chi square	27.43	27.10	21.58	23.86	27.48	22.85	37.42	20.72	18.59	23.02	43.89
	df	24	24	24	24	24	24	24	24	24	24	41
	RMSEA	0.044	0.042	0.0	0.0	0.048	0.0	0.094	0.0	0.0	0.0	0.032
	NNFI	0.97	0.98	1.00	1.00	0.97	1.01	0.88	1.02	1.04	1.01	0.97
Condition – outcome	γ_{51}	0.00	-0.04	0.00	-0.05	-0.01	-0.01	0.05	0.00	-0.01	0.01	-0.07
	γ_{61}	-0.06	0.03	-0.03	0.07	0.11	0.09	0.12	0.14	0.02	0.04	0.09
Condition – mediator	γ_{21}	-0.02	-0.29*	0.08	0.03	0.06	-0.29*	-0.01	-0.05	-0.03	-0.18	-0.14
	γ_{31}	0.30*	0.05	-0.18*	-0.05	0.16	0.04	-0.30*	-0.04	0.01	0.21	0.16
Moderator – outcome	γ_{54}	0.61*	0.60*	0.65*	0.62*	0.70*	0.66*	0.64*	0.64*	0.72*	0.73*	0.72*
	γ_{64}	-0.17	-0.19	-0.26*	-0.20	-0.20	-0.19	-0.18	-0.20	-0.24*	-0.22	-0.20
Moderator – mediator	γ_{24}	0.06	0.17	-0.01	0.09	-0.14	-0.01	-0.03	0.28*	0.02	0.16	0.09
	β_{32}	0.62*	0.72*	0.69*	0.56*	0.54*	0.34*	0.53*	0.59*	0.22	0.41*	0.59*
Mediators – outcome	β_{52}	0.24	-0.10	-0.11	0.09	0.28*	-0.02	-0.06	-0.03	0.02	0.04	-0.26
	β_{53}	-0.16	0.24	0.34*	0.09	-0.11	0.01	0.18	0.11	-0.01	-0.13	0.30
	β_{62}	0.04	-0.05	0.43*	-0.24	-0.03	-0.18	-0.16	0.14	-0.01	0.04	0.30
	β_{63}	0.42*	-0.08	-0.51*	0.15	0.19	0.03	-0.06	-0.17	-0.10	-0.13	-0.42
	ψ_{56}	-0.23*	-0.20*	-0.13	-0.20*	-0.24*	-0.24*	-0.23*	-0.23*	-0.16	-0.17	-0.08

Note. RMSEA = root mean square error of approximation, NNFI= non-normed fit index; Inv. Moth. = Positive Involvement Mother; Poor Mon. Moth. = Poor Monitoring Mother; Incon. Discp. Moth.;= Inconsistent Discipline Mother; Corp. Pun. Moth. = Corporal Punishment Mother; Inv. Fath. = Positive Involvement Father; Poor Mon. Fath. = Poor Monitoring Father; Incon. Discp. Fath. = Inconsistent Discipline Father; Corp. Pun. Fath. = Corporal Punishment Father; No cues = Number of Cues; No Resp. = Number of Responses; Aggr. Resp. = Aggressive Responses based on 2 variables.

* t -value > 2

6.3 Influences of the moderators

With respect to the theoretical background (see chapter 1), we were interested in the possible influence of the following moderators: the severity of disruptive behavior at pretreatment, age, intelligence, attention-concentration of the child, comorbidity with ADHD, and Psychoneuroticism of the mother (and Psychoneuroticism of the father only in relation to the mediators of the father). However, many of these moderators had hardly significant path coefficients with the mediator at pretreatment or with the Disruptive or Prosocial Behavior construct at posttreatment. In order to reduce the number of parameters, we finally included only the severity of the problem behavior of the child at pretreatment as moderator (see Table 6.1; influence of the moderator on the mediator at pretreatment (γ_{24}), influence of the moderator on the Disruptive Behavior construct (γ_{54}) and influence of the moderator on the Prosocial Behavior construct (γ_{64})). Studying the relation between this moderator and the outcome construct Disruptive Behavior (γ_{54}), we found a clear association: severely disruptive children at pretreatment showed more Disruptive Behavior at posttreatment than children who were less severely disrupted at pretreatment. The relation of that severity with Prosocial Behavior at posttreatment (γ_{64}) was less clear but still moderate (i.e., the values of the path coefficients varied more and only a few were significant) and indicated the converse of this finding. Looking at the association between this moderator and the mediator variables at pretreatment (γ_{24}), we found only one significant path coefficient: more severity in disruptive behavior at pretreatment was related to more Corporal Punishment by the father at pretreatment.

So, with respect to the moderators we found that the severity of the disruptive behavior at pretreatment had the most prominent influence on the Disruptive Behavior construct at posttreatment. This means that highly disruptive behavior at pretreatment is related to highly Disruptive Behavior at posttreatment.

Cortisol and treatment effect in DBD children

7.1 Introduction

Children who show persistent noncompliant, antisocial and aggressive behavior are diagnosed as suffering from conduct disorder (CD; DSM-IV, American Psychiatric Association, 1994) or oppositional defiant disorder (ODD). Studies of the biology of these disorders in young children are important, because antisocial adults often have their onset of deviant behavior in childhood, and biological factors probably play an important role in the persistency of these behaviors.

Raine (1993) has suggested that low autonomic nervous system (ANS) functioning is related to fearlessness and that a lack of fear predisposes to antisocial and violent behavior. Fearless children would be more likely to engage in sensation seeking and/or risk taking behavior because they do not fear the negative consequences of their aggressive actions. In other words, a lack of fear of punishment in children would reduce the effectiveness of attempts to reduce behavioral problems such as happen in therapeutic interventions (i.e., social conditioning).

More recently, studies have also focused on the stress hormone cortisol. Several investigations of antisocial adults have analysed cortisol levels and observed a negative relationship with the magnitude of behavioral deviation (e.g., Vanyukov et al., 1993). Few studies have been conducted on cortisol in children and the findings are equivocal. Some studies have found associations between reduced cortisol and behavioral deviation (Tennes, Kreye, Avitable & Wells, 1986; Tennes & Kreye, 1985; Vanyukov et al., 1993); other studies found no relationship (Kruesi, Schmidt, Donnelly, Hibbs & Hamburger, 1989).

Few studies have measured cortisol repeatedly. Van Goozen et al. (1998) and Van Goozen, Matthys, Cohen-Kettenis, Buitelaar and Van Engeland (2000) found that DBD boys differed most clearly from normal controls in their cortisol levels during stress rather than during rest. Still, at present it seems that both baseline cortisol and cortisol reactivity under stress could be valuable biological characteristics of DBD individuals. So far, only a small number of studies have been conducted on the predictive value of cortisol levels for later aggressive behavior (McBurnett, Lahey, Rathouz & Loeber, 2000) and no study to date has examined the predictive value of cortisol to the outcome of therapeutic interventions. Theoretically and in line with the work of Raine (1993), one could predict that children who are less responsive to stress, would profit less from an intervention aimed at decreasing their behavioral problems than children who show a normal stress response.

In this study, we collected cortisol repeatedly under resting conditions and during stress in a group of DBD children who were about to undergo outpatient treatment (e.g., behavior therapy, family therapy). It was investigated whether a pattern of low baseline cortisol level and one of low cortisol responsivity during stress were related to initially more serious problem behavior and less improvement after the intervention.

7.2 Methods and materials

7.2.1 Subjects

DBD child psychiatric patients ($n = 22$, mean age = 10.33 years ($SD = 1.16$); mean estimated IQ = 101.14 ($SD = 12.30$), all boys and Caucasian, met the criteria for ODD or CD (DSM-IV; American Psychiatric Association, 1994), checked by the Diagnostic Interview Schedule for Children (DISC 2.3; Fisher et al., 1992), and were rated by their parents above the 95th percentile on both the aggression and delinquency scales of the Child Behavior Checklist (CBCL; Achenbach, 1991b). 'Observations' of problem behavior were obtained through the Parent Daily Report (PDR; Chamberlain & Reid, 1987), which yields an Overt Aggression score and an Oppositional Behavior score. The PDR was administered shortly before the start and again after the termination of the outpatient treatment i.e., nine months later.

7.2.2 Procedure of stress exposure

Stress was induced for 80 minutes and involved frustration, provocation and aggression in a general setting of competition between the real subject and a videotaped opponent, who competed with the subject for best performance (see Van Goozen et al., 1998, 2000).

7.2.3 Procedure for saliva cortisol collection and analysis

Six saliva samples were collected. The first cortisol sample (c1) was taken before stress was induced and served as baseline value, the other 5 samples constituted the stress samples.

Saliva samples were collected in plastic vials and were stored at -20°C until analysis. Cortisol concentrations were measured without extraction using an in-house competitive radioimmunoassay with a polyclonal anticortisol antibody (K7348). $[1,2 - ^3\text{H} (\text{N})] - \text{Hydrocortisone}$ (NET 185, NEN DUPONT, Dreiech, Germany) was used as a tracer after chromatographic verification of its purity. The lower limit of detection was 0.5 nmol/L and interassay variation was 11.0; 8.2; and 7.6% at 4.7; 9.7; and 14.0 nmol/L respectively ($n = 20$).

The study was approved by the Medical Ethical Committee of University Medical Center Utrecht, and parents gave written informed consent.

7.3 Results

Two different high and low cortisol subgroups were formed: one classification was based on the cortisol level at baseline, and the other one was based on the cortisol response pattern during stress.

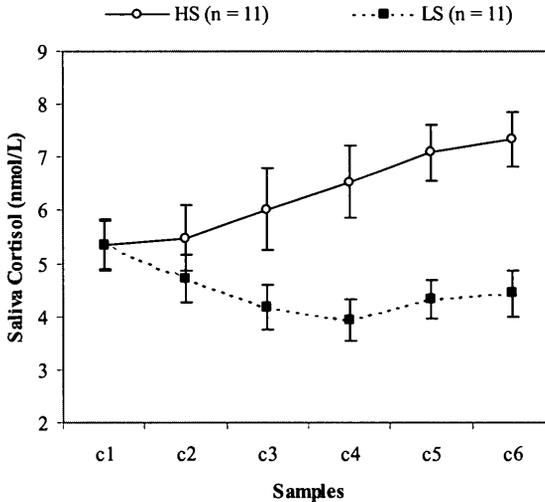
7.3.1 Baseline cortisol subgroups

Two subgroups were formed on the basis of the median baseline cortisol level (c1): a low (LB) and high baseline (HB) group with each subgroup consisting of 11 boys. These subgroups did not differ in age or intelligence. When comparing both groups on the PDR, the LB group turned out to have significantly more problem behaviors at pretreatment than the HB group (mean PDR Overt Aggression: LB = 3.65 ($SD = 1.41$); HB = 1.67 ($SD = 1.08$), $Z = -2.86$, $p < 0.01$; mean PDR Oppositional Behavior: LB = 3.67 ($SD = 1.44$); HB = 2.55 ($SD = 1.28$), $Z = -1.97$, $p < 0.05$). However, after the intervention these differences between the HB and LB groups had disappeared.

7.3.2 Stress responsivity in cortisol subgroups

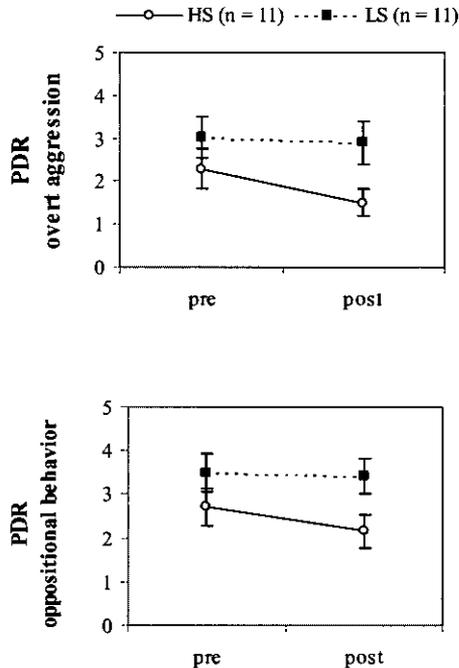
Two stress responsivity subgroups were formed based on comparisons of mean cortisol responses during stress (c2 to c6) minus the cortisol level at baseline (c1): a low stress (LS) and high stress (HS) responsivity group with each group consisting of 11 boys. The mean cortisol patterns of both groups are shown in Figure 7.1. These groups did not differ in age or intelligence.

Figure 7.1: Patterns of saliva cortisol responsivity during stress in high stress (HS) and low stress (LS) disruptive behavior disordered (DBD) children



When we compared both groups on the PDR factors no pretreatment differences were found. However, when we compared the LS and HS groups after the intervention the LS group had significantly higher Overt Aggression and Oppositional Behavior scores than the HS group (mean PDR Overt Aggression: LS = 2.89 (SD = 1.68); HS = 1.50 (SD = 1.03), $Z = -1.91$, $p < 0.06$; mean PDR Oppositional Behavior: LS = 3.41 (SD = 1.34); HS = 2.15 (SD = 1.32), $Z = -2.07$, $p < 0.04$; see Figure 7.2). In general, the mean ranking of the outcome scores of the LS group increased (comparing pre- to posttreatment ranking) whereas the mean ranking of the outcome scores of the HS group decreased (comparing pre- to posttreatment ranking).

Figure 7.2 Pre- and posttreatment comparisons of Parent Daily Report (PDR) scores in high stress (HS) and low stress (LS) subgroups



7.4 Discussion

In this preliminary study we found that DBD children with relatively low baseline cortisol levels had more serious behavioral problems than DBD children with high baseline cortisol levels. Apparently, in this highly problematic DBD group children differed in baseline cortisol levels and high and low baseline cortisol children differed significantly in their conduct problem severity before the start of an intervention. However, after nine months of treatment, the PDR scores were more or less equal. It thus seems plausible that baseline cortisol levels are related to the severity of behavioral problems at pretreatment.

We also examined cortisol level changes during stress. We found, first, that DBD children who had low baseline cortisol levels were not necessarily the same as those who were less sensitive to stress. Second, DBD children who were and who were not sensitive to stress, as reflected by their variations in cortisol levels during stress, did not differ in the severity of their behavioral problems on entrance. However, DBD children without a cortisol response during stress had more problem behaviors after nine months of treatment than DBD children who did show a clear cortisol stress response. Thus, cortisol responsivity seemed to be positively related to the possibility of changing the behavior of DBD children. The findings of our study should, of course, be replicated in larger samples of DBD children. At this moment a similar study is being conducted in an in-patient clinic of our department.

Six-months follow-up effectiveness analyses

8.1 Introduction

In this chapter the pretreatment to 6-months follow-up period is reported. To study the effectiveness of treatment, we studied the change in scores within each treatment condition (the UCPP-condition and the C-condition) separately (related to research question 1; section 8.2.1). Thereafter we compared the scores between the two conditions (research question 2; section 8.2.2), and investigated the clinical significance of effects (research question 3; section 8.3). As mentioned earlier (in chapter 2), from pre- to posttreatment subjects in both conditions received treatment, but from posttreatment to 6-months follow-up in general in the UCPP-condition, only very few subjects received treatment, whereas in the C-condition the treatment continued in many cases.

8.2 Effectiveness of treatment

8.2.1 Within-group comparisons

The research question (1), whether treatment in clinical practice is effective, was assessed by comparing within-group changes from pretreatment to 6-months follow-up, as noted in Table 8.1A for the primary outcome measures and in Table 8.1B for the secondary outcome measures.

- *Results of primary outcome measures*

At 6-months follow-up, in the UCPP-condition the subjects improved significantly on all primary outcome measures except two: the decrease in IAB Covert Antisocial Behavior and the increase in MESSY Prosocial Behavior were no longer significant. In the C-condition the subjects improved significantly on all primary outcome measures. In the UCPP-condition we found four large ESs for the PDR Overt Aggression, PDR Oppositional Behavior, IAB Overt Antisocial Behavior and CBCL Externalizing Behavior (see Table 8.1A). The remaining three small ESs were for IAB Covert Antisocial Behavior, TRF Externalizing Behavior at school and MESSY Prosocial Behavior. In the C-condition we found two large ESs for IAB Overt Antisocial Behavior and CBCL Externalizing Behavior, one moderate ES for TRF Externalizing Behavior at school, and four remaining small to moderate ESs. In general we could say that in the UCPP-condition most ESs augmented over time (i.e., during the last 6 months), whereas in the C-condition all ESs augmented over time.

- *Results of secondary outcome measures*

At 6-months follow-up, in the UCPP-condition the subjects had similar significant differences as at posttreatment. In the C-condition all subjects improved significantly on all secondary outcome measures. The ESs in the UCPP condition varied from -0.13 to 1.54, and the ESs in the C-condition varied from 0.43 to 0.92. In general, we can say that almost all ESs of the secondary outcome measures increased over time.

On the basis of the results of the primary outcome measures related to the 6-months follow-up, we can conclude that the disruptive behaviors of the children in the UCPP-condition and in the C-condition decrease over time. Moreover, based on the ESs we found that in the UCPP-condition and in the C-condition changes range from small to large.

Table 8.1A Intervention Effect: Within-Group analysis of primary outcome measures

Measure	Utrecht Coping Power Program (N=38)				Care as Usual (N = 39)			
	Pre-Treatment M (SD)	6-months follow-up M (SD)	<i>t</i> -value	ES	Pre-treatment M (SD)	6-months follow-up M (SD)	<i>t</i> -value	ES
Parent Daily Report								
Overt Aggression	2.90 (1.51)	1.78 (1.17)	5.15***	0.84	2.46 (1.44)	1.86 (1.27)	3.14**	0.44
Oppositional Behavior	3.14 (1.31)	2.25 (1.28)	3.51***	0.69	2.84 (1.40)	2.20 (1.49)	2.93**	0.44
Interview for Antisocial Behavior								
Overt Antisocial	54.89 ^a (11.63)	46.92 ^a (13.15)	4.70***	0.64	53.67 (12.40)	45.79 (14.02)	4.07***	0.60
Covert Antisocial	14.30 ^a (4.33)	13.41 ^a (3.68)	1.44	0.22	15.31 (5.71)	13.41 (4.49)	2.91**	0.37
Child Behavior Checklist								
Externalizing Behavior	74.58 (6.40)	69.16 (8.26)	4.40***	0.73	74.08 (8.03)	67.85 (9.56)	4.61***	0.71
Teacher Report Form								
Externalizing Behavior	64.92 ^a (10.05) ^a	61.16 ^a (9.83)	2.26*	0.38	65.87 (8.83)	62.31 (6.54)	2.68**	0.46
Matson Evaluation of Social Skills with Youngsters								
Prosocial Behavior	55.51 ^a (11.52)	57.73 ^a (13.25)	1.31	0.18	53.95 (12.83)	57.49 (13.39)	2.13*	0.27

^a N = 37

* p ≤ .05, ** p ≤ .01, *** p ≤ .001

Note: a positive value indicates an improvement (e.g., decrease in symptoms or increase in prosocial functioning)

Table 8.1.B Intervention Effect: Within-group analysis of secondary outcome measures

Measure	Utrecht Coping Power Program (N=38)				Care asUsual (N = 39)			
	Pre- Treatment	6-months follow-up	<i>t</i> -value	ES	Pre- treatment	6-months follow-up	<i>t</i> -value	ES
	M (SD)	M (SD)			M (SD)	M (SD)		
Nijmegen Questionnaire								
On Child-Rearing Situation								
Mother's Perception of Parenting Stress	22.32 ^a (3.71)	20.59 ^a (4.73)	2.35*	0.41	24.06 ^a (4.95)	21.23 ^a (5.62)	4.56***	0.54
Mother's Judgement of Parenting Situation	5.57 ^a (0.93)	3.81 ^a (1.35)	6.88***	1.54	5.59 ^a (1.38)	4.19 ^a (1.91)	4.15***	0.85
Father's Perception of Parenting Stress	20.98 ^c (3.87)	20.12 ^c (5.25)	1.02	0.19	21.16 ^d (4.61)	19.09 ^d (4.91)	3.22**	0.43
Father's Judgement of Parenting Situation	5.17 ^c (1.26)	3.57 ^c (1.45)	4.69***	1.18	4.94 ^d (1.39)	3.58 ^d (1.56)	4.31***	0.92
SCL-90								
Mother's Psychoneuroticism	123.78 ^a (25.09)	127.54 ^a (34.22)	-0.97	-0.13	141.76 ^a (43.55)	123.81 ^a (34.14)	3.20**	0.46
Father's Psychoneuroticism	122.94 ^b (29.08)	112.10 ^b (18.32)	2.31*	0.45	120.12 ^d (22.53)	108.22 ^c (15.50)	3.76***	0.58

^a N = 37 ^b N = 31 ^c N = 30 ^d N = 33 ^e N = 32

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Note. a positive value indicates an improvement (e.g., decrease in symptoms)

8.2.2 Between-group comparisons

The research question (2), whether the experimental condition leads to greater changes than the control condition was examined by computing pretreatment-6-months follow-up difference scores and making between-group comparisons at 6-months follow-up.

• Results of primary outcome measures

For the factor PDR Overt Aggression we found a significant improvement for the UCPP-condition, compared with the C-condition. For the other primary outcome measures we did not find any significant difference in improvement between both conditions (see Table 8.2A). The computed between-group effect sizes (ESs; see also Table 8.2A) showed that the change in PDR Overt Aggression still differed by half a standard deviation between both conditions (ES = moderate), in favor of the children in the UCPP-condition. We also found a small ES related to the PDR Oppositional Behavior of the children, again in favor of the UCPP-condition. Another small ES was found related to the IAB Covert Antisocial Behavior, but this was in favor of the C-condition. The *composite-between group ES for disruptive behavior* was -0.02 , indicating that the difference in composite-between group ES for disruptive behavior that was found at posttreatment had disappeared.

• Results of secondary outcome measures

At 6-months follow-up the mothers of the C-condition reported significantly less Psychoneuroticism, than the mothers of the UCPP-condition (see Table 8.2B). On all the other outcome measures we found no significant differences between the mean improvement of subjects in UCPP-condition and the mean improvement of subjects in the C-condition. One between-group-ES (see also Table 8.2B) was remarkably in favor of the C-condition (i.e., SCL-90 Psychoneuroticism of the mothers). Two other computed between-group ESs were also in favor of the C-condition: mother's and father's Perception of Parenting Stress. One small ES was in favor of the UCPP-condition: the Parental Judgement of the Parenting Situation by mothers.

Two items of the Life-events Checklist: 'residential care' and 'police contact', were considered to be a secondary outcome measure. In order to investigate whether the effectiveness of the treatment was related to these two items, we analyzed whether there was a difference in these events between the two conditions at 6-months follow-up. We found a significant difference on the variable 'residential care' ($\chi^2(1) = 4.11, p < 0.05$). Between pre- and 6-months follow-up, four children in the C-condition were treated in in-patient psychiatric or residential care whereas in the UCPP-condition none.

Based on the results of the primary outcome measures related to the between-group ESs at 6-months follow-up, we conclude that the difference in effectiveness between the UCPP-condition and the C-condition (found at posttreatment) has disappeared at 6-months follow-up, possibly related to a difference in the treatment given during the follow-up period.

Table 8.2A Intervention Effect: Differences between mean improvement of primary outcome measures in Utrecht Coping Power Program and in Care as Usual

Measure	Pre-6-months follow-up	
	t-value	ES
Parent Daily Report		
Overt Aggression	1.83*	0.42
Oppositional Behavior	0.76	0.17
Interview for Antisocial Behavior		
Overt Antisocial	0.04	0.01
Covert Antisocial	-1.12	-0.26
Child Behavior Checklist		
Externalizing Behavior	-0.44	-0.10
Teacher Report Form		
Externalizing Behavior	0.09	0.02
Matson Evaluation of Social Skills with Youngsters		
Prosocial Behavior	-0.56	-0.13

Note. a positive value indicates a larger improvement (e.g., decrease in symptoms or increase in prosocial functioning) of the Utrecht Coping Power Program compared with the Care as Usual.

* $p \leq .05$

Table 8.2B Intervention Effect: Differences between mean improvement of secondary outcome measures in Utrecht Coping Power Program and in Care as Usual

Measure	Pre-6-months follow-up	
	t-value	ES
Nijmegen Questionnaire On Child-Rearing Situation		
Mother's Perception of Parenting Stress	-1.16	-0.27
Mother's Judgement of Parenting Situation	0.83	0.19
Father's Perception of Parenting Stress	-1.16	-0.29
Father's Judgement of Parenting Situation	0.51	0.13
SCL-90		
Mother's Psychoneuroticism	-3.19***	-0.74
Father's Psychoneuroticism	-0.30	-0.08

Note. a positive value indicates a larger improvement (e.g., decrease in symptoms) of the Utrecht Coping Power Program, compared with the Care as Usual

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .01$

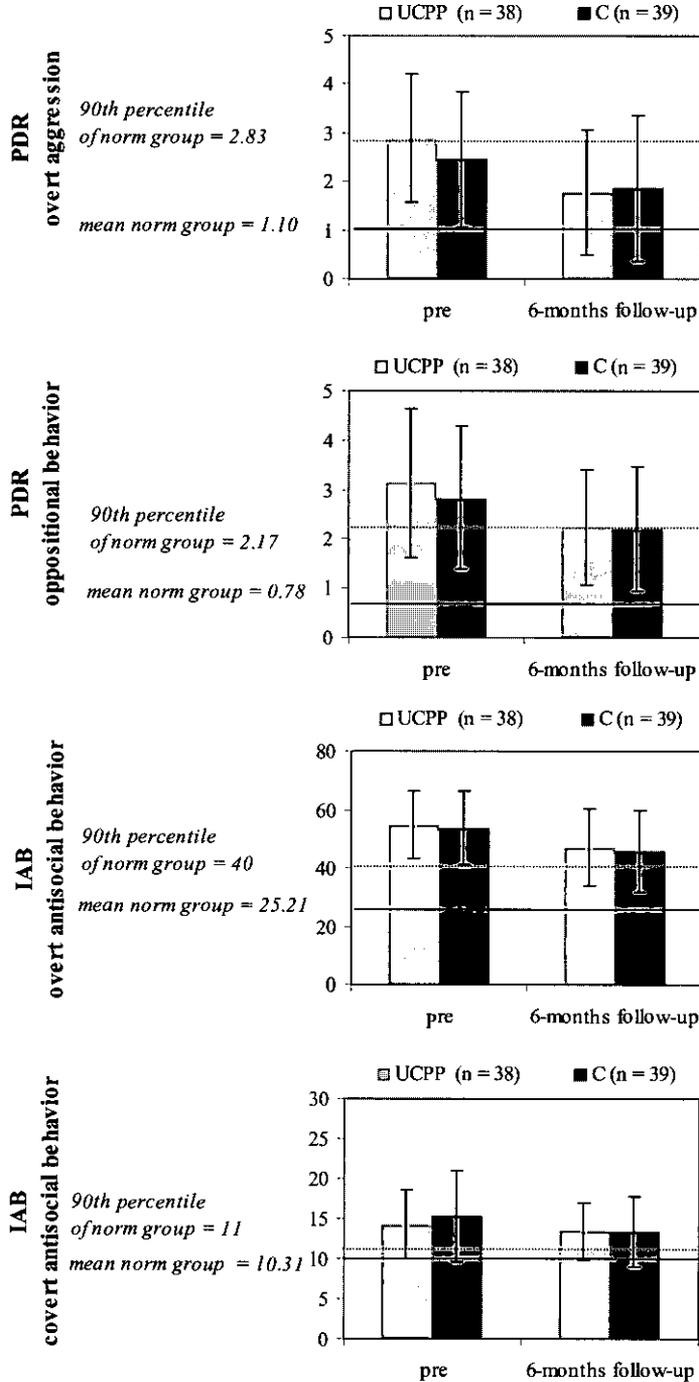
8.3 Clinical significance

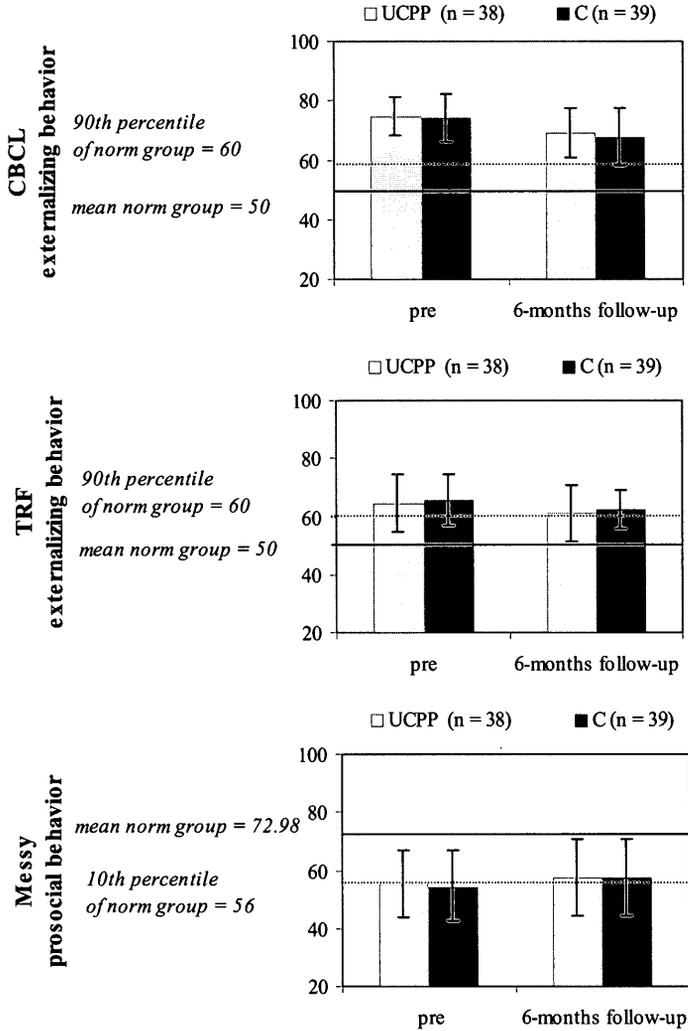
As at posttreatment, at 6-months follow-up, we also looked to see whether the changes in outcome variables within each condition over time lead to clinical significant effects within the UCPP-condition and the C-condition (research question 3). We were therefore interested in the improvements in terms of the reduction of problematic behaviors and/or increase of prosocial behavior to normative levels, and whether this clinically significant effects differed between the two conditions. The clinical impact of treatment was examined by two methods (Kazdin, 1992; Kazdin et al., 1992; see chapter 2, section 2.6 and chapter 5, section 5.4).

Again, the question of interest was the extent to which changes achieved among the DBD children were within the non-clinical ranges. To address this question, scores that defined the boundary of the normal range were used as criteria to evaluate performance on the primary outcome measures. In Figure 8.1 we present the mean scores on the primary outcome measures, at pretreatment and 6-months follow-up, in relation to the normative mean and the 90th percentile scores on each disruptive behavior measure and the 10th percentile score on the prosocial behavior measure (= cutoff scores) of the norm group.

For the IAB Overt Antisocial and Covert Antisocial Behavior, and the CBCL and TRF Externalizing Behavior scores, we found that the mean scores of neither condition entered the non-clinical range at 6-months follow-up. For the PDR Overt Aggression and Oppositional Behavior and the MESSY Prosocial Behavior we found that in both conditions the group means entered the non-clinical range at 6-months follow-up.

Figure 8.1 The pretreatment and 6-months follow-up group means and standard deviations of both clinical samples, and the 90th percentile scores of the non-clinical sample on the seven primary outcome measures





To examine the improvement of individual children, we computed the proportion of cases that fell within the normative range for the primary outcome scores (see Table 8.3). Chi-square statistics were computed to examine differences in numbers of children per treatment condition entering the normal range. For some measures on disruptive behavior, we found that the differences between the two conditions were in the same direction as we expected (see research question 3). For one variable this difference was significant by one-tailed testing: IAB Covert Antisocial ($\chi^2(1) = 3.27, p < 0.08$). As expected, the proportion of UCPP-cases that fell within the normal range at 6-months follow-up on this variable was higher than the proportion of C-cases.

Table 8.3 Clinical Impact of the intervention: Proportion of children within the range of non-clinical samples for the primary outcome measures at 6-months follow-up

Measure	Utrecht Coping Power Program			Care as Usual		
	Pretreatment	6-months follow-up		Pretreatment	6-months follow-up	
	Clinical range N	Non-clinical range N %		Clinical Range N	Non-clinical range N %	
Parent Daily Report						
Overt Aggression	21	18	85.7	20	13	65
Oppositional Behavior	30	14	46.7	29	12	41.4
Interview for Antisocial Behavior						
Overt Antisocial	34	9	26.5	32	6	18.8
Covert Antisocial	30	7	23.3	30	2	6.7
Child Behavior Checklist						
Externalizing Behavior	36	8	22.2	34	8	23.5
Teacher Report Form						
Externalizing Behavior	18	8	44.4	27	14	51.9
Matson Evaluation of Social Skills with Youngsters						
Prosocial Behavior	19	5	26.3	24	6	25

Note. Within the normal range refers to below the 90th percentiles derived from normative data for the primary outcome score for disruptive behavior (or above the 10th percentile for the prosocial behavior). Any case with a pretreatment score already within the normal range (on that specific measure) was excluded from the calculations of the proportions

In general we can say that in both conditions, the group means return to within normative range with respect to some outcome measures. Comparing the two conditions in the clinical significance of treatment we found one difference for the covert antisocial behavior of the child. With respect to this behavior relatively more children came into the normal range in the UCPP-condition than in the C-condition.

Additional analyses concerning intervention methods, therapists and cost-effectiveness

9.1 Introduction

In this chapter, besides describing the effectiveness at posttreatment (chapter 5) and at 6-months follow-up (chapter 8), we will describe some additional analyses. In section 9.2, we describe the psychotherapeutic methods used, the mean number and duration of the sessions, and the experience of the therapists in both conditions. In section 9.3, we look at the impact of various therapists on the effectiveness of the UCPP, and the impact of experience on the effectiveness (in the UCPP-condition and between the two conditions). In section 9.4 the actual costs of the treatments in both conditions and the expected costs of the UCPP are calculated.

9.2 Treatment modalities and therapist characteristics

In the UCPP-condition, subjects were provided with the combination of two treatment methods, and in the C-condition, subjects were provided with mental health services typically offered in the service setting. In the Care as Usual 38 % (n = 15) received only one kind of treatment between pre- and posttreatment (see Table 9.1). With the remaining 62 % (n = 24) two or three treatments methods were used during that period. In more than 50 % of all cases in the C-condition (n = 23) the families received a combination of two (or three) psychotherapeutic methods, of which parental guidance always was one of the methods. Moreover, (cognitive) behavior therapy and family therapy were the two main types of intervention in the Care as Usual condition.

Table 9.1 Number of psychotherapeutic methods (combined or separately) and the main type of method

Psychotherapeutic methods	Pre- to posttreatment		Posttreatment to 6-months follow-up	
	UCPP-condition	C-condition	UCPP-condition	C-condition
<i>Number of methods:</i>				
1	---	N = 15	N=4	N = 12
2	N = 37	N = 18	---	N = 12
3	N = 1	N = 6	---	N = 2
<i>Number of methods combined:</i>				
2 methods	N = 37	N = 22	---	N = 11
3 methods	N = 1	N = 1	---	N = 1
<i>Type of methods:</i>				
UCPP	N = 37	---	---	---
UCPP + homecare	N = 1	---	---	---
(Cogn.) behavior therapy	---	N = 13	---	N = 8
Family therapy	---	N = 10	N = 1	N = 4
Parental guidance	---	N = 4	N = 2	N = 4
Psychoanalytic Psychotherapy	---	N = 4	---	N = 1
Group Social Skills training	---	N = 3	---	N = 3
Other	---	N = 5	N = 1	N = 6

From pretreatment to posttreatment, comparing the number of sessions and the duration per session, we found that numbers and duration were both significantly higher for the UCPP-condition ($t_{\text{numbers}} = -7.26, p < 0.0001$; $t_{\text{duration}} = -9.29, p < 0.0001$; see Table 9.2). Comparing the years of experience of the therapist(s) in this period (of the particular therapy and of being a therapist in general) we found that they were significantly lower in the UCPP-condition (as expected because of the study design) ($t_{\text{experience in this particular method}} = 5.22, p < 0.0001$; $t_{\text{experience as a therapist}} = 9.0, p < 0.0001$; see Table 9.2)

Table 9.2 Number of psychotherapeutic sessions, mean duration per session, and the years of experience of the therapists for the Utrecht Coping Power Program (UCPP-condition) and the Care as Usual (C-condition), over the pretreatment to posttreatment period

	UCPP- condition N = 38	C- condition N = 39	Mean Difference	95% Confidence Interval of the difference	
	M (SD)	M (SD)		Lower	Upper
	Number of sessions	33 (8.8)		16 (11.5)	-17
Duration per session (in minutes)	82 (2.2)	59 (15.0)	-22.5	-27.5	-17.5
Years of experience in this particular method	0.5 (0.4)	5.5 ^a (5.8)	5	3	7
Years of experience as a therapist	0.5 (0.4)	10 ^a (6.4)	9.5	7.5	11.5

^a N = 38

From posttreatment to 6-months follow-up, only four families in the UCPP-condition and 25 families in the C-condition, still received treatment. Comparing these families (with Mann-Whitney U tests) we found that the number of sessions was significantly lower for the UCPP-condition, than for the C-condition ($M_{\text{ucpp}} = 0.89, SD = 3.34$; $M_{\text{c}} = 6.28, SD = 8.36, Z = -4.66, p < 0.001$).

9.3 Therapists

9.3.1 Therapists in the UCPP-condition and the effectiveness of treatment

To investigate the possible differences in effectiveness of the therapists in the UCPP-condition (i.e., to investigate the moderating influence of the therapists themselves), we first compared the subjects treated by the three therapists at pretreatment on the independent variables and moderators. No significant differences were found. We then compared the clients of the three therapists at posttreatment on their primary outcome pre-post difference scores and found no differences. We also looked to see whether the effect of treatment was related to greater experience of the therapists. Therefore, using Mann-Whitney U tests, we compared the first two treatment groups (of two therapists, summed to a total of four groups) with their last two treatment groups (again a total of four groups), but found no significant differences on the primary outcome measures at posttreatment.

Thus, after nine months of treatment, there were no differences in primary outcome measures between the therapist groups. Nor did the increasing experience of the UCPP therapists result in any difference in outcome results.

9.3.2 Years of experience of the therapists and the effectiveness of treatment

Following common sense, one would expect that having more experience as a therapist in treating DBD children would be related to greater treatment effectiveness. Especially in Care as Usual, wherein the individual treatment is focused on the specific problems of the child and his/her family, the experience of the therapist (especially in adequately adjusting to the care needed) would be expected to result in more positive results. Looking at the possible differences (in the primary outcome measures) related to therapist experience, we made a distinction between years of experience of the treatment method actually employed, and years of experience of being a therapist in general. For the UCPP-condition, the scores on these two variables were the same, for the C-condition these scores were highly correlated ($r = 0.73$, $p < 0.01$) so we used the years of experience of the treatment method actually employed, in our comparisons.

In the C-condition we expected the years of experience to vary between the different therapists, whereas in the UCPP-condition only inexperienced therapists conducted the intervention. First, we wanted to see in the C-condition the differences in effectiveness based on years of experience. For this purpose, a low and high therapist experience group (C-LTE and C-HTE) were constructed on the basis of the median of the years of experience of the therapists in the C-condition (median = 2.18 years of experience). Comparison of the HTE and LTE subgroups within the C-condition showed no significant differences at posttreatment or at 6-months follow-up.

In order to compare the effect of treatment conducted by therapists with little experience in the Care as Usual condition with the effect of treatment in the UCPP-condition, we used two different inexperienced subsamples of the C-condition:

(1) Comparing two low-experience-groups

The C-LTE subgroup ($N = 19$) was compared with the UCPP-condition, in which all therapists were inexperienced. Comparing the two low-experience-groups, we found no significant differences at posttreatment or at 6-months follow-up.

(2) Comparing two 'One year of experience'-groups

We also constructed an inexperienced subgroup in another way. This time, we selected the subjects in the C-condition treated by a therapist with a maximum mean of one year's experience in the used treatment method ($n = 9$), because in the UCPP-condition all therapists had maximally one year's experience. Between these groups we found no significant differences at posttreatment or at 6-months follow-up.

Moreover, comparing the C-HTE subgroup with the whole UCPP group showed no significant differences at posttreatment or at 6-months follow-up either.

9.4 Costs

We computed two kinds of costs: (1) the actual costs of the treatment in the UCPP-condition and in the C-condition, during pre- to posttreatment, and (2) the expected costs of the UCPP-treatment (including all 38 sessions), taking the professional status and years of experience of the therapist into account. In both comparisons, we studied only the costs related to the actual treatment (so-called cost price), and did not include secondary costs such as heating the building or supervision/intervention hours. Further, we took the perspective of the institution and not the perspective of the patient (e.g., costs of taking off from work by the parents) or insurance company. Finally, we based our calculations on a working week of 36 hours = 2160 minutes (and a related work month of 156 hours = 9360 minutes).

9.4.1 Costs of the treatments as conducted in the study in the UCPP-condition and C-condition

For the *UCPP-condition* we used the scale of a psychotherapist in training (scale 10; salary € 2048.82) and adjusted the salary related to the years of experience of the therapist, at the moment she started a new group. We computed the costs of the treatment method, with the formulas described in Appendix O for the costs per family and in Appendix P for the costs per group. *Costs per family*: From pretreatment to posttreatment, the mean costs of treatment per family were € 186.62 (SD = € 74.65). *Costs per group*: All families were treated in a group; the mean group costs were € 598.86 (SD = € 159.45).

For the *Care as Usual* we had to make some decisions about the salary (see Appendix Q). We used the same formula as mentioned above, but calculations were based on 5 mean years of experience for the therapists. Moreover, if two therapists conducted a therapy, we calculated both their salaries, but corrected for the groupwise treatment. From pre- to posttreatment, the mean costs of treatment per family were € 356.73 (SD = € 385.94). Between the two conditions, the costs of treatment per family differed significantly ($t = 2.63$, $p < 0.01$).

We also studied the time spent on therapy per family in both conditions. In the C-condition this was 883 minutes (SD = 915 min.), and in the UCPP-condition this was 778 minutes (SD = 211 min.) (Mean difference = 104.84 minutes; 95% confidence interval: lower = -202.96, upper = 412.64; ns). Dividing this mean treatment-time by the 9360 minutes of a (full-time work) month, we found that in the C-condition 9.4% of the working time (and respectively also of the salary) is spent on the treatment and in the UCPP-condition 8.3% of the working time (and the salary) is spent on the therapy.

9.4.2 Expected costs of the Utrecht Coping Power Program

Child component:

Each session:	75 min. therapy + 30 min. preparation/evaluation = 105 min.
Total number of sessions:	23
Time child component:	23 x 105 = 2415 minutes

Parent component:

Each session:	90 min. therapy + 30 min. preparation/evaluation = 120 min.
Total number of sessions:	15
Time parent component:	15 x 120 = 1800 minutes

Total time UCPP = 4215 minutes (= 70 hours and 15 minutes) for 4 families. This means that for one family the treatment costs 1053.75 minutes (= 17 hours and 30 minutes), based on 38 sessions. In our calculations we took the salary of only one therapist, because the co-leader in the UCPP is a student (with no salary costs). Moreover, the costs of supervision were excluded. We thus calculated the costs of the number of hours per patient. We used the following formula:

brutosalary x (duration of treatment in minutes/work month in minutes), or
 brutosalary x (1053.75/9360) = brutosalary x 0.11 = UCPP costs (per family).

We calculated with different kinds of salaries, related to the function of the therapist and the number of experience years (see Table 9.3). We can thus say that the cost price of the UCPP varies from € 230 to € 486 per family.

Table 9.3 UCPP-costs per family conducted by different kind of therapists with different numbers of experience years

Function Therapist:	Experience Years	0 years	1 year	2 years	5 years	10 years
Social worker/social psychiatric nurse (scale 9)		€ 241.64	€ 253.44	€ 266.42	€ 300.08	€ 332.88
Psychotherapist in training (scale 10)		€ 230.66	€ 241.64	€ 253.44	€ 289.20	€ 343.40
Health Care psychologist (scale 11)		€ 310.66	€ 322.36	€ 332.88	€ 365.73	€ 421.05
Psychiatrist in training (scale 11a)		€ 289.20	€ 300.08	€ 310.66	€ 343.40	€ 399.44
Clinical Psychologist (scale 12)		€ 377.48	€ 388.51	€ 399.44	€ 432.24	€ 485.32

The expected duration of treatment of one family is 11% of the time of a working month. This is the case when four families are treated per group. However, on the basis of our clinical experience during the study, we found that it would be practical to treat five families per group in the future, in order to keep using the group processes despite dropouts or absences of clients. This increase in the number of clients per group is feasible because the handling of four children in practice was less difficult than expected, and some families consist of one caretaker, so that the number of parents would be adequate to manage. We realize that by increasing the number of families per treatment, we cannot say with certainty that the effects will be the same as found in this study, but we do not expect that larger groups will lead to significant differences. By expanding the group from four to five families, we reduce the costs by 2 % (because the duration of treatment of one family now becomes 9% of a working month).

Thus, on the basis of the treatments conducted in the study, we found that the UCPP per family is cheaper than the Care as Usual.

Summary of results and general discussion

10.1 Summary of results

This thesis reports on the effect of the Utrecht Coping Power Program (UCPP) on the behavior of children with Disruptive Behavior Disorders (DBD; i.e., Oppositional Defiant Disorder or Conduct Disorder according to DSM-IV) compared with the effect of 'Care as Usual'. The central issues regarding the treatment of DBD children and the distinction between effectiveness and efficacy are discussed in chapter 1. The research questions of this thesis are formulated in chapter 2; the methods used are discussed in chapter 2 and 3. In chapter 4 the UCPP is described, following which the effects of treatment (chapter 5) and the role of moderating and mediating factors (chapter 6) are detailed. Special attention is given to the relation of the biological factor cortisol to the effect of intervention (chapter 7). The results of 6-months follow-up are presented in chapter 8. Finally, additional analyses of the way the therapy is conducted, of the therapists and of costs related to the treatment are reported in chapter 9.

Our effect study addresses the following questions:

- 1 What are the changes in the primary and secondary outcome measures within each condition over time?
- 2 Is there a difference in the effectiveness of treatment between the UCPP-condition and the C-condition?
- 3 Is there a difference in the clinical significance of the treatment effect between the UCPP-condition and the C-condition?
- 4 What is the influence of the moderators on the treatment effect?
- 5 What is the influence of the mediators on the treatment effect?
- 6 Is there a difference in the costs of treatment between the UCPP-condition and the C-condition?

The answers to these questions are now summarized.

10.1.1 What are the changes in the primary and secondary outcome measures within each condition over time?

From pre- to posttreatment, the primary outcome measures changed significantly over time in both conditions. That is, the disruptive behavior decreased and the prosocial behavior increased. In the UCPP-condition the effect sizes of the primary outcome measures ranged from 0.24 to 0.69, in the C-condition the effect sizes ranged from 0.23 to 0.54. In both conditions, therefore, the effect sizes over time (pre- to posttreatment) ranged from small to moderate.

From pre- to posttreatment, most secondary outcome measures related to the parenting stress decreased significantly in both conditions. However, the psychoneuroticism of both parents did not change significantly over time in either condition. In the UCPP-condition, the effect sizes of the secondary outcome measures ranged from 0.04 to 1.33 (i.e., near zero to very large), in the C-condition the effect sizes ranged from 0.14 to 0.61 (i.e., small to moderate).

During this first time-period (from pre- to posttreatment) in both treatment conditions, all subjects received treatment. However, during the 6-months follow-up subjects in both conditions differed in the treatment they were given: in the UCPP-condition, only very few subjects received treatment, whereas in the C-condition the treatment continued in many cases. Outcome measures of the C-condition at 6-months 'follow-up' therefore represent more the direct results of prolonged treatment rather than actual follow-up results.

From pretreatment to 6-months follow-up, the disruptive behavior decreased significantly over time in both conditions (except for Covert Antisocial Behavior in the UCPP-condition). The prosocial behavior increased only significantly in the C-condition, and not in the UCPP-condition. In the UCPP-condition the effect sizes ranged from 0.18 to 0.84, in the C-condition the effect sizes ranged from 0.27 to 0.71. In both conditions, therefore, the effect sizes over time (pretreatment to 6-months follow-up) ranged from small to large.

From pre- to 6-months follow-up, the parenting stress decreased in both conditions. The psychoneuroticism of both parents decreased significantly over time in the C-condition. In the UCPP-condition this was only true for the psychoneuroticism of father. In the UCPP-condition the effect sizes ranged from -0.13 to 1.54, in the C-condition the effect sizes ranged from 0.43 to 0.92.

Taken all the results together we found that in both conditions the changes over time were favorably.

10.1.2 Is there a difference in the effectiveness of treatment between the UCPP-condition and the C-condition?

At posttreatment, the two conditions differed significantly only on overt aggressive behavior. With respect to this behavior, children in the UCPP-condition improved more than children in the C-condition. Differences of effect between the two conditions were also calculated with the use of effect sizes, with a positive effect size meaning a larger effect in the UCPP-condition than in the C-condition. At posttreatment, these effect sizes ranged from -0.11 to 0.49 for the primary outcome scores and from -0.17 to 0.53 for the secondary outcome scores. Moreover, the composite effect size for disruptive behavior at posttreatment was 0.18, meaning that for this important outcome measure there was a small effect size in favor of the UCPP-condition.

At 6-months follow-up, the two conditions differed again significantly on overt aggressive behavior: in the UCPP-condition the DBD children improved more with respect to this behavior than in the C-condition, despite the fact that many children in the C-condition continued to receive treatment which was not the case in the UCPP-condition. At 6-months follow-up, the mothers in the C-condition showed significantly less psychoneuroticism than the mothers in the UCPP-condition. Inspection of the effect sizes showed that at 6-months follow-up, the effect sizes ranged from -0.26 to 0.42 for the primary outcome measures, and from -0.74 to 0.19 for the secondary outcome measures. Moreover, the composite effect size for disruptive behavior at 6-months follow-up was -0.02, meaning that there was no difference anymore in effect between both conditions at 6-months follow-up.

Thus, although at posttreatment there was scarcely any significant difference between the two conditions on the outcome measures, the small composite-between group effect size of disruptive behavior ($ES = 0.18$) demonstrates a small difference between the two conditions in favor of the UCPP-condition. At 6-months follow-up, this difference between the two conditions disappeared, but as mentioned before, this could be the consequence of the difference between the conditions in the treatment given during the follow-up period.

10.1.3 Is there a difference in the clinical significance of the treatment effect between the UCPP-condition and the C-condition?

At posttreatment and at 6-months follow-up, the clinical population scores (in both conditions) reached the non-clinical range on some primary outcome measures. At posttreatment this was true for overt aggressive behavior and prosocial behavior. In addition, at 6-months follow-up this was also true for the oppositional behavior. We found that outpatient treatment can partly bring the behavior of DBD children within the range of the behavior of non-clinical children. We found some significant differences between the two conditions in the proportion of children that reached the non-clinical range, all in favor of the UCPP-condition. At posttreatment we found differences with respect to oppositional and overt antisocial behavior of the child, and at 6-months follow-up with respect to covert antisocial behavior.

10.1.4 What is the influence of the moderators on the treatment effect?

Of all the various moderators, i.e., age, intelligence, severity of the problem behavior, comorbidity with ADHD, attention-concentration, psychoneuroticism of mother, and psychoneuroticism of father, only the severity of problem behavior at pretreatment was related to the disruptive behavior at posttreatment. The more severe the problem behavior at pretreatment, the more disruptive was the behavior at posttreatment. Moreover, with respect to the biological moderators, we found that the type of cortisol pattern during stress was related to the effect of treatment: high stress responsivity children at pretreatment showed less behavior problems at posttreatment than low stress responsivity children.

10.1.5 What is the influence of the mediators on the treatment effect?

Of all the various mediators, i.e., parenting skills of the mother, parenting skills of the father, and social problem-solving skills of the child, only certain parenting skills of the mother were related with the disruptive and/or prosocial behavior of the child at posttreatment. First, there was a positive and significant relation between the positive involvement of the mother at posttreatment and the prosocial behavior of the child at posttreatment, meaning that, overall (i.e., in both conditions), more positive involvement of the mother was related to more prosocial behavior at posttreatment. Moreover, at posttreatment, the mothers in the UCPP-condition reported greater improvement in their positive involvement than the mothers in the C-condition. Secondly, for mothers in both conditions, less inconsistency at posttreatment was related to less disruptive behavior at posttreatment, and less inconsistency at posttreatment was related to more prosocial behavior at posttreatment. Moreover, at posttreatment, the mothers in the UCPP-condition became more consistent in their discipline compared with the mothers in the C-condition.

Thus, the positive involvement of mother and the consistent discipline of mother, which were both related to the outcome construct(s), improved more in the UCPP-condition than in the C-condition. We therefore anticipate that the children in the UCPP-condition change in their behavior through the mothers' change in Positive Involvement (i.e., increase) and change in Inconsistent Discipline (i.e., decrease).

10.1.6 Is there a difference in the costs of treatment between the UCPP-condition and the C-condition?

In the UCPP-condition the costs per family were € 186.62 (SD = € 74.65), whereas in the C-condition the costs were considerably higher, that is € 356.73 (SD = € 385.94) per family.

10.2 General discussion

We wanted to find out whether the combination of two behavioral methods (parent management training and social problem-solving skills training for children, called the Utrecht Coping Power Program (UCPP)), that has been proven to be efficacious in the treatment of DBD children in so-called research conditions (research therapy), is also effective in everyday clinical practice (clinic therapy) (Weisz et al, 1995). To study the effectiveness of this combination of methods, we compared two treatment conditions: the UCPP-condition versus an active Care as Usual condition (C-condition).

We found that (1) within the two treatments the disruptive and prosocial behavior of the children changed favorably over time; (2) that although the two conditions hardly differed from each other in the outcome measures, the composite effect size for disruptive behavior at posttreatment (comparing the UCPP-condition and C-condition) was small and showed a small difference in favor of the UCPP-condition; (3) that both treatments were capable of bringing the child's behavior within the normal range of behavior on some behavioral outcome variables; and for some outcome variables the proportion of children that reached the non-clinical range was larger in the UCPP-condition than in the C-condition (4) that two moderators appeared to affect the problem behavior of the child at posttreatment i.e., the severity of the problem behavior of the child at pretreatment and low cortisol reactivity under stress at pretreatment; (5) that some evidence was found for a mediating effect in the UCPP-condition on the behavior of the child at posttreatment through improving positive involvement and decreasing the inconsistency in discipline of the mother, and that (6) the UCPP-condition was less expensive than the Care as Usual-condition.

10.2.1 Strengths and weaknesses

There are several strengths in this study, most significantly related to bridging the gap between research and clinical practice. This is a pre-randomized clinical trial with referred DBD children rather than recruited children. For a clinical study, the investigated sample size is relatively large. The fact that we hardly found significant differences between the two conditions is not surprising because of the small effect sizes expected when an experimental condition is compared with an active control condition (Kazdin & Bass, 1989).

The study also has some weaknesses which need to be addressed. Although we initially thought we could use the teachers as independent informants, this appeared not to be the case. Parents informed their children's teachers of the content of the treatment. Moreover, we found that in everyday clinical practice teachers were often participants in the treatment. All our sources of information were thus at least informed about, and often participated and invested in the treatment. This kind of report is vulnerable to various distortions. For example, there is a risk that persons who invest much energy and time in changing their practices and the behavior of the child, may feel inclined to justify the effort spent and consequently may report greater gains than are actually obtained. Another risk is that involved persons are inclined to please the researcher, which also may affect the results positively. On the other hand, actual change in the child's behavior may not be perceived by the parents because their mental representations of the child based on many years of negative interactions may prevent this. In order to overcome these risks, direct observation may be used for the behavior of the child to be studied by independent informants (i.e., blind to the treatment content). This method, however, is very time-consuming and expensive.

Another weakness is related to the design of this study, which includes an active control condition rather than a passive control condition. The use of an active control condition raises questions about the treatment effect within each condition, because there is the risk of natural maturation and placebo-effect. However, following Angold et al. (2000), we think that referred DBD children are indeed on a deteriorating trajectory and that despite maturation these

children's behaviors will not improve. Various studies conducted by Kazdin and others (Kazdin, 1997b; Kazdin et al., 1987a; 1987b) have shown that PMT and PSST are more effective than passive control conditions. We therefore believe that the UCPP-condition at least surpasses placebo-effects. Moreover we found that the effect within the UCPP-condition is not a-specific but there is some evidence for a mediating role of some parenting skills of the mother. Thus, the content of treatment did make a difference.

Moreover, in this study, almost all subjects were Caucasian. Therefore, it is unclear whether the results can be generalized to non-Caucasian families. We believe, however, that the UCPP can be used with non-Caucasian families, with small adjustments with respect to their cultural background.

A final weakness is that the group is relatively small for using LISREL analyses, although the sample size is relatively large for a clinical population study.

10.3 Implications for clinical practice

Several implications for clinicians working with DBD children and their families may be drawn from the present thesis. Both treatment conditions have positive effects over time, but the results appear to be slightly more positive for the UCPP. Moreover, the costs of the UCPP are lower. We therefore would advice starting treatment of all referred DBD children with the Utrecht Coping Power Program. Of course, comorbidity with ADHD should also be treated with medication. After the termination of this treatment, there will still be children (e.g., those who had the most severe conduct problems at pretreatment) who need further treatment. At that time, as outlined under so-called 'stepped care', there is the possibility of day-treatment and if necessary in-patient treatment.

Our study on biological factors should be replicated because of the small number of subjects in the present study. Even if the results are replicated, there will still be a long way to go to develop and introduce a clinical instrument for a biological screening procedure for each subject individually. For the present, this information may only be integrated into the clinicians' 'frame of reference' while working with families, meaning that they should realize that not all children can profit equally from treatment and that biological factors could play a moderating role (Matthys, 2001). However, the current results suggest that in future it may be possible to select the best possible treatment option for an individual based on the outcomes of a biological screening procedure. DBD children with a low biological risk (e.g., with 'normal' cortisol responsivity during stress) may be expected to profit from psychotherapeutic procedures, whereas those with an elevated biological risk (e.g., with cortisol hyporesponsivity during stress) should perhaps also be treated with medication that targets the biological dysfunction.

It would be wise to inform the parents of a child with serious problem behavior that although treatment will begin with the UCPP, further additional treatment may be necessary after completion of the UCPP. Moreover, the parents should be told that the effect of treatment will probably lead to decrease of symptoms and increase of prosocial behavior, but that the child will remain different from 'normal' children in continuing to manifest some problem behaviors. In this way families are already better informed about what they can expect of the effect and the duration of treatment, which is important in order to keep the families in treatment. In relation to this issue, we would advise integration of the school in the treatment, especially with children who show severe behavioral problems at school. These children and their families appeared to be at a higher risk of dropping out of treatment. Further research is needed to investigate whether severe behavioral problems at school, high levels of subjective parenting stress of the mother, and low employment of the mother (other risk factors for

dropping out of treatment) could be regarded as real contra-indications for outpatient treatment. If so, day-treatment or in-patient treatment would be more suitable treatment settings in which the Utrecht Coping Power Program and contingency management could be integrated together with special education at the school associated with these settings (Matthys, 1997). We are at present already doing this at Vosseveld, a division of the Department of Child and Adolescent Psychiatry, University Medical Center Utrecht, in cooperation with the Redschool.

The study as presented in this thesis indicates that both treatment conditions resulted in improvements over time in the behavior of the child. Not only did the disruptive behavior of the child decrease but the prosocial behavior of the child also increased. Clinicians often assume a direct relation between disruptive and prosocial behavior, but in our study both behaviors changed independently of each other, i.e., we found a low correlation between both constructs. Although we realize that these results need replication, the findings are interesting. Our results indicate that we cannot conclude that by improving the prosocial behavior the disruptive behavior will automatically decrease, nor that by diminishing the disruptive behavior, the prosocial behavior will automatically increase. Both sets of behaviors need to be addressed independently in therapy.

Another aspect that is relevant to clinical practice might be that the UCPP needs some adjustments. As we found no significant relation between the social problem-solving skills of the children and their disruptive or prosocial behavior, we suggest that the number of sessions of the children be reduced, whereas the parental sessions could be expanded. This is also in line with the meta-analytical studies indicating larger ESs with DBD children by PMT than by PSST. Moreover, on the basis of our clinical experience, we believe that the management of five children instead of four is feasible within the group treatment. Further, at posttreatment the small composite effect size of disruptive behavior ($ES = 0.18$) demonstrates a small difference between both conditions in favor of the UCPP-condition. This composite ES between the two conditions is small, but relatively large when it is compared with the mean ES of 0.01 of other clinical effect studies related to various disorders (Weisz et al., 1995), in which treatments were compared with a control-condition. At 6-months follow-up, this difference between the two conditions disappeared but, as mentioned before, this could be the consequence of the difference between the conditions in the treatment given during the follow-up period. This does not mean, however, that the treatment in the UCPP-condition should be continued in order to maintain treatment effects. Indeed, the decrease in disruptive behavior continued during the follow-up period in the UCPP-condition. Perhaps booster sessions could be added to the UCPP to augment the long term effect. Perhaps needless to say, but the impact of these changes on the effect size of treatment should be studied.

10.4 Recommendations for future research

The findings of the study should of course be replicated in other samples of DBD children. In addition, a replication of the cortisol study is needed, since our findings are important but relatively weak because of the small number of subjects. The relationship between cortisol and treatment effect is thus an interesting object of future study. At present, such a follow-up study with a large sample is being conducted at Vosseveld.

Further, to avoid conclusions being drawn solely on the basis of subjective information, we think that in future studies it would be wise to use independent observations as well. Additional instruments should also be developed and/or used for studying features of the child and parents, that were not addressed in this study. For example, it might be that certain aspects of the child's cognitions, which were not assessed, actually changed during the UCPP treatment, e.g., change in the cognitive style (more reflective, less impulsive) or taking

responsibility for one own's behavior. Another aspect that we did not address but which might have changed under treatment, is the support of the mother by the father.

Another important aspect is the long-term effect of treatment. Although not discussed in this thesis, a second follow-up is presently being conducted 18 months after the 6-months follow-up. This long term effect is especially interesting since long term changes could show 'sleeper' effects. In other words, effects could appear late, rather than at the end of treatment. This means that the decrease in problem behavior as a result of treatment could be larger and related to more outcome measures after two years (Kolvin et al., 1987). Studying the long term effects also rules out the risk of biased self-report measures i.e., the risk of reporting favorable change as a function of positive involvement and investment: two years after this investment, this mechanism will at least have diminished.

Summary

On the basis of meta-analytical and other relevant outcome studies, *chapter 1* gives a clinical review of the treatment of school-aged children with Disruptive Behavior Disorders (DBD). The term DBD is used to include Oppositional Defiant Disorders (ODD) and Conduct Disorders (CD) (American Psychiatric Association, 1994), which are highly interrelated in school-age children (Lahey et al., 1992). Meta-analyses of studies of the outcome of parent management training (Serketich & Dumas, 1996) and cognitive-behavioral therapy (Bennett & Gibbons, 2000) with DBD children have shown that these methods are efficacious. These studies, however, are not representative of the effectiveness of treatment in everyday clinical practice. In everyday clinical practice, the following features of psychotherapy are important (Weisz et al., 1995): (a) the patients are referred or are seeking help; (b) the psychopathology of patients is severe and complex (e.g., comorbidity); (c) therapy takes place in service-oriented clinics or clinical agencies; (d) the patients are treated by clinicians with large caseloads, and (e) the clinical interventions are often eclectic and non-behavioral. Under research conditions, in contrast: (a) the clients are recruited at schools or through advertisement in newspapers; (b) the psychopathology of the study volunteers is less severe or complex; (c) research therapy is conducted in research settings (e.g., an university lab or a school); (d) the recruited clients are treated by specifically trained research-assistants with small caseloads, and (e) research therapy is more structured (using treatment manuals) and often behaviorally oriented.

There is a gap between the so-called efficacy studies in research conditions and the effectiveness studies in clinical practice. The mean effect size of the few clinic therapy studies related to various disorders is almost zero. To bridge this gap in relation to DBD children, we wanted to investigate whether the combination of two manualized behavioral methods, parent management training and social problem-solving skills training for children, that have been proven efficacious in the treatment of DBD children in so-called research conditions (research therapy), is also effective in everyday clinical practice (clinic therapy) (Weisz et al., 1995).

Our aim was to study the effect of treatment (per condition) on the disruptive and prosocial behavior of the child, with clinically referred children. Besides studying the effect in terms of statistically significant differences and effect sizes, we also studied improvements in terms of the reduction of problematic behaviors and/or the increase in prosocial behavior to within normative levels (i.e., clinical significance). Moreover, we wanted to investigate whether certain child and parental features would influence (i.e., moderate) the outcome, and we wanted to investigate the processes or mechanisms that might be responsible for (i.e., mediate) therapeutic change. The study had three assessment moments: measures that reflect the domains of interest were administered at pretreatment, posttreatment (after nine months) and at 6-months follow-up. Different sources were used: parent(s), teacher and child. All the instruments are described in *chapters 2* and *3*.

The Coping Power Program (Lochman & Wells, 1996), consisting of a parent management training and a social problem-solving skills training for the child, was adapted for use in outpatients clinics in the Netherlands and was called the Utrecht Coping Power Program (UCPP), described in *chapter 4*. The child component consists of 23 weekly sessions with four children over a 9-months period. The parents of these four children meet 15 times every other week. Specifically trained (over 6 months) but clinically inexperienced young psychologists carried out the manualized treatment. We conducted a pre-randomized clinical trial in which the effect of the Utrecht Coping Power Program was compared with the effect

of Care as Usual (C-condition) (e.g., family therapy, individual behavior therapy) given by experienced psychotherapists (mean time of clinical experience: 10 years). For this purpose, 77 children (aged 8-12 years) with an Oppositional Defiant Disorder or Conduct Disorder and their parents were assigned randomly to either the experimental condition or the active control condition. Medication for the treatment of comorbid Attention Deficit Hyperactivity Disorder (ADHD) was given in both conditions where indicated.

The results of the effect study of the period from pretreatment to posttreatment are described in *chapters 5, 6 and 7*. In *chapter 5* (and in *chapter 8* likewise), we address the statistical and clinical significance of the treatment effects. From pre- to posttreatment, within both conditions, the outcome measures changed significantly over time. That is, the disruptive behavior decreased and the prosocial behavior increased. In the UCPP-condition the effect sizes ranged from 0.24 to 0.69 and in the C-condition the effect sizes ranged from 0.23 to 0.54. Thus, in both conditions the effect sizes over time (pre- to posttreatment) range from small to moderate and the changes over time are favorable.

Comparing the two conditions at posttreatment, on the basis of difference scores, we found that the two conditions differed significantly only on overt aggressive behavior: children in the UCPP-condition improved more with respect to this behavior than children in the C-condition. Differences between the two conditions in their effect were also calculated using effect sizes, with a positive effect size meaning a larger effect in the UCPP-condition than in the C-condition. At posttreatment, these effect sizes ranged from -0.11 to 0.49. Moreover, the composite effect size for disruptive behavior at posttreatment was 0.18, meaning that for this important outcome measure there was a small effect size in favor of the UCPP-condition. Thus, although at posttreatment there was hardly any significant difference between the two conditions on the outcome measures, the small composite effect size of disruptive behavior demonstrated a small difference between both conditions in favor of the UCPP-condition. This composite ES between the two conditions is small, but relatively large when it is compared with the mean ES of 0.01 of other clinical effect studies related to various disorders (Weisz et al., 1995), in which treatments were compared with a control-condition.

Looking at the clinical significance, we found that at posttreatment the clinical population scores on some outcome measures (in both conditions) reached the non-clinical range. At posttreatment this was true for overt aggressive behavior and prosocial behavior. Thus, outpatient treatment can partly bring the behavior of DBD children within the range of closeness of the behavior of non-clinical children. Moreover, with respect to oppositional behavior and overt antisocial behavior of the child, we found that the proportion of UCPP-cases that fell within the normal range at posttreatment was significantly higher than the proportion of C-cases.

Chapter 6 reports on the mediating factors through which the treatment works and the moderating factors influencing the treatment effect. Moderators and mediators were studied by developing a model with estimated path coefficients by means of LISREL analyses. Of all the various mediators, i.e., parenting skills of the mother, parenting skills of the father and social problem-solving skills of the child, only some of the parenting skills of the mother were related to the disruptive and/or prosocial behavior of the child at posttreatment. First, there was a positive and significant relation between the positive involvement of the mother at posttreatment and the prosocial behavior of the child at posttreatment, meaning that overall (i.e., in both conditions) more positive involvement of mother was related to more prosocial behavior at posttreatment. Moreover, at posttreatment the mothers in the UCPP-condition had become more involved than the mothers in the C-condition. Second, for the mothers (in both conditions) less inconsistency at posttreatment was related to less disruptive behavior at

posttreatment, and less inconsistency at posttreatment was related to more prosocial behavior at posttreatment. Moreover, at posttreatment the mothers in the UCPP-condition had become more consistent in their discipline compared with the discipline of the mothers in the C-condition. We therefore anticipate that the children in the UCPP-condition change in their behavior through the mothers' change in Positive Involvement (i.e., increase) and change in Inconsistent Discipline (i.e., decrease).

Of all the various moderators, i.e., age, intelligence, severity of the problem behavior, comorbidity with ADHD, attention, psychoneuroticism of mother, and psychoneuroticism of father, only the severity of problem behavior at pretreatment was related to the disruptive behavior at posttreatment: the more severe the problem behavior at pretreatment, the more disruptive the behavior at posttreatment. In addition, the moderating role of a biological factor, i.e., cortisol was studied in *chapter 7*. We looked to see whether in DBD children a pattern of lower cortisol at baseline or under stress is related to more serious problem behavior and less improvement after outpatient treatment. Cortisol levels at baseline and under stress were studied in 22 DBD children before the start of treatment. We found that DBD children with relatively low baseline cortisol levels had more serious behavioral problems at pretreatment than DBD children with high baseline cortisol levels. During stress DBD children showed either increasing (HS group) or decreasing (LS group) cortisol values. Although these subgroups were similar in the intensity of behavioral problems before treatment, the behavioral problems of the HS group were significantly lower than the behavioral problems of the LS group after the intervention. Thus, baseline cortisol levels are inversely related to the severity of behavioral problems in DBD children at pretreatment, whereas the type of cortisol pattern during stress is related to the effect of treatment: children with high responsivity to stress at pretreatment show less behavioral problems at posttreatment than children with low responsivity to stress.

In *chapter 8*, we report on the statistical and clinical significance of the treatment effects from pretreatment to 6-months follow-up. In contrast to the first time-period (from pre- to posttreatment) in which all subjects in both treatment conditions received treatment, during the 6-months follow-up subjects in the two conditions differed in the treatment they were given: in the UCPP-condition, only very few subjects received treatment, whereas in the C-condition the treatment continued in many cases. Outcome measures of the C-condition at 6-months 'follow-up' therefore represent more the direct results of prolonged treatment rather than of actual follow-up results. From pretreatment to 6-months follow-up, the disruptive behavior decreased significantly over time in both conditions. Prosocial behavior increased significantly only in the C-condition, and not in the UCPP-condition. In the UCPP-condition the effect sizes ranged from 0.18 to 0.84 and in the C-condition the effect sizes ranged from 0.27 to 0.71. In both conditions, therefore, the effect sizes over time (pretreatment to 6-months follow-up) range from small to large.

Comparing the two conditions at 6-months follow-up, we found that the two conditions again differed significantly on overt aggressive behavior: in the UCPP-condition the DBD children improved more with respect to this behavior than in the C-condition, despite the fact that many children in the C-condition continued to receive treatment which was not the case in the UCPP-condition. Inspection of the effect sizes showed that at 6-months follow-up, the effect sizes ranged from -0.26 to 0.42. Moreover, the composite effect size for disruptive behavior at 6-months follow-up was -0.02. That is, there was no longer any difference in effect between both conditions at 6-months follow-up.

At 6-months follow-up, on some outcome measures, the clinical population scores in both conditions reached the non-clinical range. At 6-months follow-up this was true for overt aggressive behavior, oppositional behavior, and prosocial behavior. Thus, outpatient treatment

can partly bring the behavior of DBD children within the range of the behavior of non-clinical children. Moreover, with respect to the covert antisocial behavior of the child, we found that the proportion of UCPP-cases falling within the normal range at 6-months follow-up was significantly higher than the proportion of C-cases.

In *chapter 9* we report on the costs of both treatment conditions in the period of the first nine months (from pretreatment to posttreatment). We calculated the costs related to the conduction of the treatment (so-called cost price), omitting secondary costs such as heating the building or supervision/intervention hours. In the UCPP-condition the costs per family were € 186.62 (SD = € 74.65), whereas in the C-condition the costs were considerably higher, that is € 356.73 (SD = € 385.94) per family.

In conclusion, we find that the UCPP is effective over time in decreasing the disruptive behavior and increasing the prosocial behavior of the child. However, it may be asked whether and to what extent this effect is induced by natural maturation or placebo. Following Angold et al. (2000) we think that referred DBD children without treatment are on a deteriorating trajectory, i.e., despite maturation these children's behaviors will not improve. Various studies conducted by Kazdin and others (Kazdin, 1997b; Kazdin et al., 1987a; 1987b) have shown that parent management training and social problem-solving skills training for the child are more effective than passive control conditions. We therefore believe that the effect of the UCPP-condition is at least greater than placebo-effects. We also believe that the effect within the UCPP-condition is not a-specific since there is some evidence for a mediating role of some parenting skills of the mother. Moreover, we found at posttreatment a small composite-between group ES of disruptive behavior in favor of the UCPP-condition. Combined with the knowledge that the costs of the UCPP are relatively low per family, we think there is sufficient reason to begin an implementation plan.

Samenvatting

In *hoofdstuk 1*, wordt een klinisch overzicht gegeven op basis van meta-analytische en andere relevante effect studies over de behandeling van kinderen in de schoolleeftijd met disruptieve gedragsstoornissen (DBD). De term DBD omvat zowel de oppositioneel-opstandige gedragsstoornis (ODD) als de antisociale gedragsstoornis (CD) (American Psychiatric Association, 1994). Bij schoolkinderen zijn beide gedragsstoornissen nauw aan elkaar verwant (Lahey e.a., 1992). Meta-analytische studies met betrekking tot het effect van trainingen van ouders in opvoedingsvaardigheden (Serketich & Dumas, 1996) en cognitieve gedragstherapie voor het kind (Bennett & Gibbons, 2000) hebben aangetoond dat deze interventies een gunstige invloed hebben op DBD kinderen. Echter, deze studies zijn niet representatief voor het effect van behandeling in de alledaagse klinische praktijk. In de alledaagse klinische praktijk, zijn de volgende kenmerken van psychotherapie belangrijk (Weisz e.a., 1995): (a) de patiënten zijn verwezen of zoeken zelf hulp, (b) de psychopathologie van de patiënten is ernstig en complex (bijv. co-morbiditeit), (c) therapie vindt plaats op poliklinieken, (d) de patiënten worden behandeld door klinici met een grote caseload, en (e) de klinische interventies zijn vaak eclecticisch en niet-gedragsmatig. In research condities, daarentegen, geldt: (a) de cliënten worden geworven via scholen of door middel van advertenties in kranten, (b) de psychopathologie van de cliënten is minder ernstig en complex, (c) de therapie wordt uitgevoerd in research settings (bijv. een universiteitslaboratorium of een school), (d) de geworven cliënten worden behandeld door specifiek getrainde onderzoeksassistenten met een kleine caseload, en (e) de behandeling binnen research is gestructureerder (met behulp van behandelprotocollen) en vaak gedragstherapeutisch georiënteerd.

Er is dus een kloof tussen de zogenaamde 'efficacy' (d.w.z. werkzaamheid van een behandeling) studies in onderzoekssituaties en de zogenaamde 'effectiveness' (effectiviteit) studies in de klinische praktijk. De gemiddelde effectgrootte van het kleine aantal klinische therapie studies met betrekking tot verschillende stoornissen is nagenoeg nul. Om deze kloof te overbruggen met betrekking tot DBD kinderen, wilden we het effect van de combinatie van twee geprotocolleerde gedragstherapeutische methoden onderzoeken. Deze combinatie van een oudertraining in opvoedingsvaardigheden en een training in sociale probleemoplossing voor het kind, blijkt werkzaam te zijn in de behandeling van DBD kinderen in onderzoekssituaties (research settings). Wij wilden onderzoeken of de combinatie van beide methoden ook effectief is in de alledaagse klinische praktijk.

Ons doel was het effect van behandeling (per conditie) te onderzoeken bij klinisch verwezen kinderen met betrekking tot het disruptieve en prosociale gedrag. Naast het bestuderen van het effect in termen van statistisch significante verschillen en effectgrootte, onderzochten we ook de verbeteringen in termen van de afname van het problematische gedrag en/of de toename van het prosociale gedrag tot binnen het gebied van het normale functioneren (d.w.z. klinische significantie). Bovendien, wilden we onderzoeken of bepaalde kind- en ouderfactoren van invloed waren op de uitkomsten (modererende factoren), en we wilden de processen of mechanismen onderzoeken die verantwoordelijk zijn voor de therapeutische verandering (mediërende factoren). De studie had drie meetmomenten: direct voor de start van de behandeling, bij nameting (na 9 maanden) en nog eens 6 maanden later (6-maands follow-up). Verschillende bronnen werden gebruikt: ouder(s), leraar en kind. Alle instrumenten worden beschreven in *hoofdstuk 2* en *3*.

Het 'Coping Power' programma (Lochman & Wells, 1996) bestaande uit een oudertraining in opvoedingsvaardigheden en een training in sociale probleemoplossing voor het kind, werd aangepast om te gebruiken in poliklinieken in Nederland en werd het 'Utrecht Coping Power Programma' (UCPP) genoemd. Dit programma staat beschreven in *hoofdstuk 4*. De kind-component bestaat uit 23 wekelijkse sessies met vier kinderen gedurende een periode van 9 maanden. De ouders van deze vier kinderen komen om de week, 15 keer bijeen. Specifiek (gedurende 6 maanden) getrainde maar klinisch onervaren jonge psychologen voerden de geprotocolleerde behandeling uit. Een geperandomiseerd klinisch onderzoek werd uitgevoerd waarin het effect van het 'Utrecht Coping Power Programma' werd vergeleken met het effect van de 'Care as Usual' (C-conditie) (bijv. gezinstherapie, individuele gedragstherapie) gegeven door ervaren psychotherapeuten (met een gemiddelde klinische ervaring van 10 jaar). Hiertoe werden 77 kinderen (in de leeftijd van 8 tot en met 12 jaar) met een oppositioneel-opstandige of een antisociale gedragsstoornis en hun ouders at random toegewezen aan ofwel de experimentele conditie ofwel de actieve controle conditie. Medicatie voor de behandeling van co-morbiditeit, met name Aandachtstekort Hyperactiviteitsstoornis (ADHD) werd in beide condities gegeven als dit geïndiceerd was.

In *hoofdstuk 5, 6 en 7*, worden de resultaten van de effectstudie in de periode tussen voor- en nameting beschreven. In *hoofdstuk 5* (en zo ook in hoofdstuk 8) richten we ons op de statistische en klinische significantie van de behandel-effecten. Tussen de voor- en nameting, binnen de twee condities veranderden de uitkomstmaten significant over de tijd heen: het disruptieve gedrag nam af en het prosociale gedrag nam toe. In de UCPP-conditie varieerde de effectgrootte tussen 0.24 en 0.69, en in de C-conditie varieerde deze van 0.23 tot 0.54. Dus in beide condities variëren de waarden van de effectgrootte van klein tot gemiddeld en zijn de veranderingen over de tijd heen positief.

Bij vergelijking van de beide condities bij nameting, op basis van verschillcores, bleken de twee condities alleen significant van elkaar te verschillen op openlijk agressief gedrag: kinderen in de UCPP-conditie verbeterden meer met betrekking tot dit gedrag dan kinderen in de C-conditie. Verschillen tussen de beide condities werden ook berekend met behulp van effectgrootte, waarbij een positieve effectgrootte betekent dat er een groter gewenst effect is in de UCPP-conditie dan in de C-conditie. Bij nameting varieerde de effectgrootte van -0.11 tot 0.49. Bovendien had de samengestelde score voor disruptief gedrag (op grond van verschillende maten van disruptief gedrag) een effectgrootte van 0.18, hetgeen inhield dat voor deze belangrijke uitkomstmaat er een klein verschil in effectgrootte was ten gunste van de UCPP-conditie. Dus ondanks dat de beide condities bij nameting nauwelijks van elkaar verschilden op de uitkomstmaten, toonde de kleine effectgrootte van de samengestelde score voor disruptief gedrag een klein verschil aan tussen de twee condities ten gunste van de UCPP-conditie. Deze samengestelde effectgrootte is klein, maar relatief groot vergeleken met een gemiddelde effectgrootte van 0.01 van andere klinische effect studies betreffende diverse stoornissen bij kinderen (Weisz e.a., 1995), waarin behandelingen werden vergeleken met een controle-conditie.

Kijkend naar de klinische significantie, vonden we dat bij nameting op enkele uitkomstmaten, de scores van beide groepen de niet-klinische range bereikten. Bij nameting gold dit voor openlijk agressief gedrag en prosociaal gedrag. Het blijkt dus dat poliklinische behandeling het gedrag van DBD kinderen gedeeltelijk binnen de range van het gedrag van normale kinderen kan brengen. Bovendien, met betrekking tot het oppositionele gedrag en het openlijk antisociale gedrag van het kind, vonden we dat het percentage UCPP-kinderen dat bij nameting binnen de normale range viel, significant groter was dan het percentage C-kinderen.

In *hoofdstuk 6* worden de resultaten besproken van de mediërende factoren (waardoor de behandeling werkt), en van de modererende factoren (die het therapie-effect beïnvloeden). De rol van de modererende en mediërende factoren werd bestudeerd door de ontwikkeling van een model met geschatte padcoëfficiënten door middel van LISREL analyses. Van alle verschillende mediërende factoren, d.w.z. de opvoedingsvaardigheden van moeder, de opvoedingsvaardigheden van vader en de sociale probleemoplossende vaardigheden van het kind, hingen slechts enkele opvoedingsvaardigheden van moeder samen met het disruptieve en/of prosociale gedrag van het kind bij nameting. Allereerst was er een positieve en significante relatie tussen de positieve betrokkenheid van moeder bij nameting en het prosociale gedrag van het kind bij nameting, hetgeen betekende dat in het algemeen (d.w.z. in beide condities) positieve betrokkenheid van moeder samenhangt met sociaal gedrag bij het kind bij nameting. Bovendien waren de moeders van de UCPP-conditie bij nameting meer betrokken geraakt bij hun kinderen dan de moeders van de C-conditie. Daarnaast gold bij nameting (voor beide condities) dat minder inconsequent gedrag van moeder samenhangt met minder disruptief gedrag en met meer sociaal gedrag van het kind bij nameting. Bovendien waren de moeders van de UCPP-conditie bij nameting minder inconsequent in hun disciplinerende gedrag dan de moeders van de C-conditie. We veronderstellen dat kinderen in de UCPP-conditie in hun gedrag verbeteren door het meer positief betrokken raken van moeder en door de consequenter geworden disciplinerende maatregelen van haar.

Van alle verschillende modererende factoren, d.w.z. leeftijd, intelligentie, ernst van het probleemgedrag, co-morbiditeit met ADHD, aandachtsconcentratie, psychoneuroticisme van moeder, en van vader, hing alleen de ernst van het probleemgedrag bij voormeting samen met het disruptieve gedrag van het kind bij nameting: hoe ernstiger het probleemgedrag bij voormeting, hoe ernstiger het disruptieve gedrag bij nameting. Verder werd de modererende rol van de biologische factor cortisol bestudeerd in *hoofdstuk 7*. We onderzochten bij DBD kinderen of een patroon van lage cortisol in rust of onder stress samenhangt met ernstiger probleemgedrag en minder verbetering na een poliklinische behandeling. Cortisol waarden in rust en onder stress werden bestudeerd bij 22 DBD kinderen voor de start van een behandeling. We vonden dat DBD kinderen met een relatief lage cortisol waarde in rust ernstigere gedragsproblemen hadden bij voormeting dan DBD kinderen met een hoge cortisol waarde in rust. Gedurende stress toonden DBD kinderen of een toename (hoge stress responsiviteits-groep) of een afname (lage stress responsiviteits-groep) in cortisol waarden. Alhoewel deze groepen vergelijkbaar waren in de intensiteit van hun gedragsproblemen voor de start van de behandeling, waren, na de behandeling, de gedragsproblemen van de hoge stress responsiviteits-groep significant lager dan de gedragsproblemen van de lage stress responsiviteits-groep. Dus, er is een omgekeerd verband tussen de cortisol waarden in rust en de ernst van gedragsproblemen bij DBD kinderen bij voormeting, terwijl het type cortisol patroon gedurende stress samenhangt met het effect van de behandeling: kinderen met hoge stress responsiviteit bij voormeting vertonen minder gedragsproblemen bij nameting dan kinderen met lage stress responsiviteit.

In *hoofdstuk 8*, rapporteren we over de statistische en klinische significantie van de behandelresultaten tussen voormeting en 6-maands follow-up. In tegenstelling tot de eerste tijdsperiode (tussen voor- en nameting) waarin alle personen in beide condities een behandeling kregen, verschilden de beide condities in behandeling in de laatste 6 maanden: in de UCPP-conditie waren er slechts enkele personen die nog een behandeling ontvingen, terwijl in de C-conditie de meeste personen hun behandeling voortzetten. Dus de uitkomstmaten van de C-conditie bij de 6-maands 'follow-up' vertegenwoordigen meer de directe resultaten van een voortgezette behandeling dan van een follow-up in de strikte zin van het woord. Tussen voormeting en de 6-maands follow-up nam in beide condities het disruptieve gedrag significant af over de tijd. Het prosociale gedrag nam alleen significant toe in de C-conditie, en niet in de UCPP-conditie. In de UCPP-conditie varieerde de effectgrootte

van 0.18 tot 0.84, in de C-conditie varieerde de effectgrootte van 0.27 tot 0.71. Dus, in beide condities variëren de waarden van de effectgrootte over de tijd (tussen de voormeting en de 6-maands follow-up) van klein tot groot.

Vergelijkingen tussen de twee condities bij 6-maands follow-up, leverden opnieuw het resultaat op dat de twee condities verschilden in openlijk agressief gedrag: in de UCPP-conditie verbeterden de kinderen meer ten aanzien van dit gedrag dan in de C-conditie, ondanks het feit dat veel kinderen in de C-conditie behandeling bleven ontvangen hetgeen niet het geval was in de UCPP-conditie. Bij 6-maands follow-up bleken de waarden van de effectgrootte te variëren van -0.26 tot 0.42. Bovendien was de samengestelde effectgrootte voor het disruptieve gedrag bij 6-maands follow-up -0.02, hetgeen betekent dat er geen verschil meer was bij 6-maands follow-up tussen de twee condities.

Bij de 6-maands follow-up bereikten in beide groepen sommige scores van uitkomstmaten de niet-klinische range. Dit gold voor openlijk agressief gedrag, oppositioneel gedrag en sociaal gedrag. We vonden (opnieuw) dat poliklinische behandeling het gedrag van DBD kinderen gedeeltelijk binnen de range van het gedrag van normale kinderen kan brengen. Bovendien, met betrekking tot het heimelijke antisociale gedrag van het kind vonden we dat het percentage UCPP-kinderen dat binnen de normale range viel bij 6-maands follow-up significant groter was dan het percentage C-kinderen.

In *hoofdstuk 9* doen we verslag van de kosten van beide behandelcondities in de periode van de eerste negen maanden (van voormeting tot nameting). We berekenden de kosten die betrekking hadden op de uitvoering van de therapie (zogenaamde kostprijs) en sloten de secundaire kosten uit zoals de verwarming van het gebouw of supervisie/intervisie uren. In de UCPP-conditie waren de kosten per gezin € 186.62 (SD = € 74.65), terwijl in de C-conditie de kosten aanzienlijk hoger waren namelijk € 356.73 (SD = € 385.94) per gezin.

Uit dit onderzoek blijkt dat de UCPP effectief is over de tijd door het disruptieve gedrag af te laten nemen en het sociale gedrag van het kind toe te laten nemen. Echter, de vraag kan gesteld worden in welke mate dit effect veroorzaakt wordt door natuurlijke rijping of placebo. Op basis van Angold e.a. (2000) denken we dat verwezen DBD kinderen zonder behandeling zich op een traject bevinden waarbij hun disruptieve gedrag niet afneemt, m.a.w. ondanks rijping verbetert hun gedrag niet. Daarnaast hebben verscheidene studies uitgevoerd door Kazdin en anderen (Kazdin, 1997b; Kazdin e.a., 1987a; Kazdin e.a., 1987b) aangetoond dat oudertrainingen in opvoedingsvaardigheden en trainingen voor het kind in sociale probleemoplossing effectiever zijn dan passieve controle condities. We denken daarom dat de UCPP-conditie op zijn minst het placebo-effect overstijgt. Ook zijn we van mening dat het effect binnen de UCPP-conditie niet specifiek is aangezien er aanwijzingen zijn voor een mediërende rol van enkele opvoedingsvaardigheden van moeder. Bovendien vonden we bij nameting een kleine effectgrootte ten gunste van de UCPP-conditie op basis van een samengestelde score van het disruptieve gedrag. Gecombineerd met de wetenschap dat de kosten van de UCPP per gezin relatief laag zijn, menen we dat we tot implementatie over kunnen gaan.

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Appendices

Appendix A

The Items of the Parent Daily Report Checklist

- 1 Aggressiveness
- 2 Arguing
- 3 Bedwetting
- 4 Competitiveness
- 5 Complaining
- 6 Crying
- 7 Defiance
- 8 Destructiveness
- 9 Fearfulness
- 10 Fighting with sibs
- 11 Firesetting
- 12 Hitting others
- 13 Hyperactiveness
- 14 Irritableness
- 15 Lying
- 16 Negativism
- 17 Noisiness
- 18 Noncomplying
- 19 Refusing meals
- 20 Pants wetting
- 21 Pouting
- 22 Running around
- 23 Running away
- 24 Sadness
- 25 Soiling him/herself
- 26 Stealing
- 27 Talking back (to an adult)
- 28 Teasing
- 29 Temper tantrum
- 30 Whining
- 31 Yelling
- 32 Police contact
- 33 School contact
- 34 Parents spank

Appendix B

The Items of the Interview for Antisocial Behavior

- 1 Temper tantrums
- 2 Teasing others
- 3 Using obscene language
- 4 Talking back to parents
- 5 Respecting authority
- 6 A negative attitude (frequently saying no)
- 7 Controlling his/her behavior
- 8 Moving around a lot and yelling
- 9 Breaking into cars, stores etc.
- 10 Breaking windows of buildings, cars etc.
- 11 Stealing from stores
- 12 Stealing from parents or friends
- 13 Starting fires
- 14 Being cruel to animals
- 15 Being cruel, bullying, or being mean to others
- 16 Stating (s)he wishes to be dead
- 17 Thinking about or trying to end his/her life
- 18 Trying to harm him(her)self
- 19 Breaking things that belong to him/her
- 20 Breaking things that belong to family or friends
- 21 Cutting up things such as seats on buses
- 22 Writing on car, walls, etc.
- 23 Getting into many fights
- 24 Getting along with other children
- 25 Punching, kicking, or biting others
- 26 Verbally threatening others
- 27 Getting mad erratically
- 28 Starting arguments
- 29 Fighting with brothers and sisters
- 30 Not being able to take turns or wait

Appendix C

The Factors of the Interview for Antisocial Behavior extracted by Kazdin & Esveldt-Dawson (1986)

Factor 1: Arguing/fighting

- 1 Temper tantrums
- 2 Teasing others
- 3 Using obscene language
- 4 Talking back to parents
- 5 Respecting authority
- 6 A negative attitude (frequently saying no)
- 7 Controlling his/her behavior
- 8 Moving around a lot and yelling
- 15 Being cruel, bullying, or being mean to others
- 23 Getting into many fights
- 24 Getting along with other children
- 25 Punching, kicking, or biting others
- 26 Verbally threatening others
- 27 Getting mad erratically
- 28 Starting arguments
- 29 Fighting with brothers and sisters
- 30 Not being able to take turns or wait

Factor 2: Covert Antisocial Behaviors

- 9 Breaking into cars, stores etc.
- 10 Breaking windows of buildings, cars etc.
- 11 Stealing from stores
- 12 Stealing from parents or friends
- 13 Starting fires
- 14 Being cruel to animals
- 19 Breaking things that belong to him/her
- 20 Breaking things that belong to family or friends
- 21 Cutting up things such as seats on buses
- 22 Writing on car, walls, etc.

Factor 3: Self-Injury

- 16 Stating (s)he wishes to be dead
- 17 Thinking about or trying to end his/her life
- 18 Trying to harm him(her)self

Appendix D

The Matson Evaluation of Social Skills with Youngsters (MESSY; Adult version)

- * Factor: Appropriate Social Skills extracted by Matson et al. (1983)
- (1/1) Makes other people laugh (tells jokes, funny stories etc.)
 - (10/12) Helps a friend who is hurt
 - (18/24) Walks up to people and starts a conversation
 - (19/25) Says "Thank you" and is happy when someone does something for him/her
 - (25/35) Sticks up for friends
 - (26/36) Looks at people when they are speaking
 - (28/42) Smiles at people he/she knows
 - (33/49) Thinks good things are going to happen
 - (34/50) Works well on a team
 - (37/53) Takes care of others' property as if it were his/her own
 - (39/55) Calls people by their names
 - (40/56) Asks if he/she can be of help
 - (41/57) Feels good if he/she helps others
 - (45/62) Asks questions when talking with others
 - (47/72) Feels sorry when he/she hurts others
 - (50/75) Joins in games with other children
 - (51/76) Plays by the rules of a game
 - (54/79) Does nice things for others who are nice to him/her
 - (56/81) Asks others how they are, what they have been doing etc.
 - (59/86) Is friendly to new people he/she meets

The number in parentheses on the left denotes where the items appear in the text presented to the adult (in the American version with 64 items/ in the Dutch version with 92 items).

- * Factor: Prosocial Scale extracted by Bell-Dolan and Allan (1998)
- (10/12) Helps a friend who is hurt
 - (19/25) Says "Thank you" and is happy when someone does something for him/her
 - (25/35) Sticks up for friends
 - (26/36) Looks at people when they are speaking
 - (28/42) Smiles at people he/she knows
 - (31/47) Shows feelings
 - (33/49) Thinks good things are going to happen
 - (40/56) Asks if he/she can be of help
 - (41/57) Feels good if he/she helps others
 - (47/72) Feels sorry when he/she hurts others
 - (54/79) Does nice things for others who are nice to him/her
 - (56/81) Asks others how they are, what they have been doing etc.
 - (59/86) Is friendly to new people he/she meets

The number in parentheses on the left denotes where the items appear in the text presented to the adult (in the American version with 64 items/ in the Dutch version with 92 items).

Appendix E

Life-events Checklist

In General

- During this period, did something change in the family constitution?
- During this period, did you move?

Child

- Does your child sport or take part in a club in an organized setting?
Did anything change in this situation?
- During this period, did your child change from school?
- During this period, did your child get very ill?
- During this period, did your child have an accident?
- During this period, was your child admitted to a hospital?
- During this period, was your child placed into an in-patient institution?
- During this period, did your child have contact with the police?
- During this period, did your child receive any treatment and/or medication?

Is your child the only child in the family?

Brother(s)/Sister(s)

- During this period, did a brother/sister get very ill?
- During this period, did a brother/sister have an accident?
- During this period, was a brother/sister admitted to a hospital?
- During this period, was a brother/sister placed into an in-patient institution?
- During this period, did a brother/sister receive any treatment and/or medication?

Parents

- During this period, did one of the parents get very ill?
- During this period, did one of the parents have an accident?
- During this period, was one of the parents admitted to a hospital?

Who is the breadwinner in the family? Father or mother?

- Did father have a job at the beginning of this period?
During this period, did anything change in this situation?
- Did mother have a job at the beginning of this period?
During this period, did anything change in this situation?
- During this period, did one of the parents receive any treatment and/or medication?

Other

- During this period, did something else happen, that we did not ask about?

Appendix F

Differences between DSM-III-R and DSM-IV

For the conversion of the results of the DISC we used the following rules, based on the criteria of the disorders, as well as personal consultation with a professional child-psychiatrist:

	DSM-III-R	DSM-IV
Oppositional Defiant Disorder	Five out of nine criteria	Four out of eight criteria <i>Comparable with the content of the criteria of DSM-III-R</i>
Conduct Disorder	Three out of 13 criteria	Three out of 15 criteria <i>Including the 13 criteria of DSM-III-R</i>
Attention Deficit Hyperactivity Disorder	Eight out of 14 criteria	<u>Attention Deficit</u> : Six out of nine criteria <i>Six criteria are comparable with those of DSM-III-R. The three other criteria are traceable in some questions of the DISC.</i> <u>Hyperactivity/Impulsivity</u> : Six out of nine criteria <i>Six criteria are comparable with those of DSM-III-R. Two criteria are traceable in some questions of the DISC . One criterion cannot be traced.</i>
Separation Anxiety Disorder	Three out of nine criteria	Three out of eight criteria <i>Comparable with those of DSM-III-R</i>
Overanxious Disorder	Four out of seven criteria	<u>Generalized Anxiety Disorder.</u> <i>Not to be converted.</i>
Generalized Anxiety Disorder	Six out of 18 criteria	One out of six criteria <i>Comparable with those of DSM-III-R</i>
Avoidance Disorder		<i>Diagnosis excluded in DSM-IV</i>
Obsessive Compulsive Disorder: Obsessions	Four criteria	Four criteria: <i>Three criteria are comparable with DSM-III-R. One criterion cannot be traced.</i>
Compulsions	Three criteria	Two criteria <i>Comparable with DSM-III-R</i>
Encopresis		<i>Identical with DSM-III-R</i>
Enuresis		<i>Comparable with DSM-III-R</i>
Tic Disorders: Chronic Motor or Vocal Transient Tic Disorder Tourette's Disorder		<i>Comparable or traceable in DISC</i> <i>Comparable with DSM-III-R</i> <i>Comparable or traceable in DISC</i>
Dysthymic Disorder		<i>Identical with DSM-III-R</i>
Major Depression		<i>Identical with DSM-III-R</i>

Appendix G

Anger Situation Questionnaire: The eight stories

Story 1:

You bought beautiful new clothes and you are very pleased with them. Arriving at school, some children laugh at you and say you look stupid and childish.

Story 2:

At school you are playing with your favorite toy. It was allowed, but all of a sudden the teacher comes towards you and takes the toy away from you.

Story 3:

You are playing ludo with a friend. You are far ahead. Suddenly he/she throws your counter off the board. When you place your counter back on the board, he/she says you are too far ahead. He/she takes your counter out of your hands and puts it at the start of the board.

Story 4:

You are working hard on a beautiful drawing for an exhibition at school. Just as you are finished, a child comes towards you, and with a red felt pen makes a big slash across your drawing.

Story 5:

You are at home with a friend watching a very exciting program on the television. All at once, his older brother (her older sister) enters the room and switches the television to another program without asking you anything

Story 6:

One day you arrive a little late for school. You see a group of children standing around a friend of yours, and teasing him/her. Your friend looks very unhappy because he/she is teased that way.

Story 7:

You are working in the classroom and a big child is coming towards you, and gives you a punch. He/she says that if you tell anyone, he/she will beat you up next time.

Story 8:

You made a date with a couple of friends to go play sport. One of the children has new gym shoes. When you pull on your gym shoes, the child with the new shoes says: "What weird shoes you have! It isn't possible to run in those!" And everyone laughs at you.

Appendix H

Four video-vignettes of the Social Problem-solving Test.

Being Disadvantaged

LEGO

The protagonist is building a plane but does not succeed. Another boy offers to help him, the result being that the plane breaks into pieces.

TAG

A group of children are playing tag together. The protagonist is tagging after a peer, who falls just as he is tagged. Lying on the floor he is calling the protagonist names.

Competition

DRAUGHTS

The protagonist is losing a game (playing draughts) against a peer.

Social Expectations

CYCLE-BAGS

The protagonist is putting bags up on his bicycle but needs help to finish the job. Two peers are nearby talking to each other and one of them looks at the boy.

Appendix I**Alabama Parenting Questionnaire: Scale Composition****Involvement**

- 1 You have a friendly talk with your child
- 4 You volunteer to help with special activities that your child is involved in (e.g., as sports, Boy/Girl Scouts, church youth groups)
- 7 You play games or do other fun things with your child
- 9 You ask your child about his/her day in school
- 11 You help your child with his/her homework
- 14 You ask your child what his/her plans are for the coming day
- 15 You drive your child to a special activity
- 20 You talk to your child about his/her friends
- 23 Your child helps plan family activities
- 26 You attend PTA meetings, parent/teacher conferences, or other meetings at your child's school

Positive Parenting

- 2 You let your child know when he/she is doing a good job with something
- 5 You reward or give something extra to your child for obeying you or behaving well
- 13 You compliment your child when he/she does something well
- 16 You praise your child if he/she behaves well
- 18 You hug or kiss your child when he/she has done something well
- 27 You tell your child that you like it when he/she helps around the house

Poor Monitoring/Supervision

- 6 Your child fails to leave a note or let you know where he/she is going
- 10 Your child stays out in the evening past the time he/she is supposed to be home
- 17 Your child is out with friends you do not know
- 19 Your child goes out without a set time to be home
- 21 Your child is out after dark without an adult with him/her
- 24 You get so busy that you forget where your child is and what he/she is doing
- 28 You do not check that your child comes home from school when he/she is supposed to
- 29 You do not tell your child where you are going
- 30 Your child comes home from school more than an hour past the time you expect him/her
- 31 Your child is at home without adult supervision

Inconsistent Discipline

- 3 You threatened to punish your child and then do not actually punish him/her
- 8 Your child talks you out of being punished after he/she has done something wrong
- 12 You feel that getting your child to obey you is more trouble than it is worth
- 22 You let your child out of a punishment early (e.g., lift restrictions earlier than you originally said)
- 25 Your child is not punished when he/she has done something wrong
- 31 The punishment you give your child depends on your mood

Corporal Punishment

- 33 You spank your child with your hand when he/she has done something wrong
- 35 You slap your child when he/she has done something wrong
- 38 You hit your child with a belt, switch, or other object when he/she has done something wrong

Other Discipline Practices

- 34 You ignore your child when he/she is misbehaving
- 36 You take away privileges or money from your child as a punishment
- 37 You send your child to his/her room as a punishment
- 39 You yell or scream at your child when he/she has done something wrong
- 40 You calmly explain to your child why his/her behavior was wrong when he/she misbehaves
- 41 You use time out (make him/her sit or stand in a corner) as a punishment
- 42 You give your child extra chores as a punishment

Appendix J

• **Descriptive (and moderating) Variables**

* Age:		Birthdate is known for all children, and is subtracted from the date of first assessment.
* IQ:		the (estimated) WISC-RN Full Scale
* Sex:		boy/girl
* Comorbidity ADHD:		yes/no, based on clinical diagnosis
* Comorbidity Anxiety Disorders:		yes/no
* Comorbidity Dysthymia:		yes/no
* Attention:		D2- attention-concentration
* School type:		regular education vs. special education
* Use of medication:		yes/no
* Methylphenidate:		yes/no
* Dosage of methylphenidate:		in milligram
* Condition		Care as Usual = 1, UCPP = 2
* Participation in related stress-study:		yes/no
* The severity of the disruptive behavior at pretreatment:		CBCL-externalizing score
* Family type:		(1) one parent (2) biological family (two parents) or newly formed family (3) divorced parents, both taking care of the child
* Social Ecanomical Status (of mother and father)	<i>education:</i>	1 elementary education 2 junior secondary vocational education 3 secondary school 4 senior general secondary school 5 senior secondary vocational education 6 higher vocational education 7 university
	<i>employment:</i>	1 unskilled labor 2 skilled labor 3 low employees 4 self-employed 5 average employees 6 high professions 7 housewife/houseman
We made this classification with the help of the 'Beroepenklapper' (Westerlaak, Kropman & Collaris, 1975).		
* The psychopathology of the parents:		SCL-90 score Psychoneuroticism
* Choice for outpatient care:		first choice vs. second choice (i.e., the latter means that the first clinical choice was residential treatment, but this advice was not implemented because of unwillingness of the parents or lack of accommodation).
* Therapist:		the three different main therapists of the UCPP-condition are categorized here.
* Experience of the therapist:		1) the experience as therapist of this particular treatment 2) the experience as therapist in clinical practice in general
* Number of contacts:		the number of contacts from pre- to posttreatment, and from post- to 6-months follow-up
* Cortisol at baseline:		See Chapter 7, section 7.2 and 7.3
* Cortisol under stress:		See Chapter 7, section 7.2 and 7.3

Appendix J continued

• **Outcome Variables**

Primary outcome variables:

Disruptive Behavior:

PDR-Overt Aggression
 PDR-Oppositional Behavior
 IAB-Overt Antisocial
 IAB-Covert Antisocial
 CBCL-Externalizing
 TRF-Externalizing
 MESSY-Prosocial

Prosocial Behavior:

Secondary outcome variables:

Parenting stress (of mother and father):

NVOS-Perception of Parenting Stress
 NVOS-Judgement of Parenting Situation

Parental Dysfunctioning (of mother and father):

SCL-90 - Psychoneuroticism

Life-events:

LC- two items: residential treatment and police contact

• **Mediating Variables**

Child variables:

Encoding:

SPT: Number of Cues

Response generation:

SPT: Number of Responses

Emotion:

ASQ: Anger Score

Aggressive Response:

ASQ: Anger Intensity

ASQ: % of Aggressive Responses

SPT: % of Aggressive Responses (first response)

SPT: % of Aggressive Responses (second response)

SPT: Aggressive Responses (max. score 200)

Prosocial Response:

ASQ: % of Prosocial Responses

SPT: % of Prosocial Responses (first response)

SPT: % of Prosocial Responses (second response)

SPT: Prosocial Responses (max. score 200)

Aggressive Response selection:

ASQ: response selection: % aggressive

SPT: response selection: % aggressive

Prosocial Response selection:

ASQ: response selection: % prosocial

SPT: response selection: % prosocial

Self-efficacy:

SPT: self-efficacy (prosocial)

SPT: self-efficacy (antisocial)

SPT: self-efficacy (submissive)

Parent variables:

Parenting skills (of mother and father):

APQ- Positive Involvement

APQ- Poor Monitoring

APQ- Inconsistent Discipline

APQ- Corporal Punishment

Appendix K

Utrecht Coping Power Parental Component.

* Example of an exercise with a new topic:

(Part of) Session five: *Giving instructions (35 minutes)*.

Seven types of bad instructions

Each type of bad command is introduced by the therapist by giving an example. Parents are asked what is bad about that instruction. The co-leader then labels this kind of instruction and writes it down. It is important that the therapist should refer to the fact that all adults (including the leaders) make these errors all the time.

Seven types of bad instruction (the therapist gives the example, the co-therapist asks the parents why this instruction is bad and writes down the name of the type of instruction):

1. **Buried instructions:** Instructions followed by too much talking on the part of the parent. This talking usually takes the form of excessive explanation and rationalization. For example: 'John, go and put on your sweater, because it's cold outside and you know how you always get frozen and then you catch a cold and then you have to stay home from school, and then you get behind with your schoolwork....'
2. **Chain instructions:** stringing too many commands together. For example: 'Go to your room, and clean up that mess on the floor, and make up your bed, and take out the garbage, and then get in there and fix a sandwich for your little brother.'
3. **Question instructions:** giving the command in the form of a question instead of an imperative. Giving the command in question form gives the impression that the child has a choice and may choose to answer 'No'. For example: 'Don't you think you should turn off the TV and do your homework now?'
4. **Repeated instructions:** repeating the same command over and over again. For example: 'Take out the garbage. I said, take out the garbage. Didn't you hear me? I said take out the garbage.'
5. **Vague instructions:** Vague commands are unspecific. They do not state exactly what the parent wants the child to do. For example: 'Stop that'. 'Be good'. 'Behave yourself.'
6. **Let's... instructions:** commands that always begin with 'Let's'. These commands imply that the parent and child are going to do the task together when, in fact, the parent wants the child to do the task independently. For example: 'Let's go and clean up your room.'
7. **Instructions yelled from a distance:** For example: 'Turn down the radio'. (yelled from downstairs to the child which is up in his/her room).

Parents are asked whether they recognize these 'bad' instructions.

Good instructions:

Good instructions are instructions that state specifically and directly what is to be done.

The rules to follow when giving children good instructions (be sure that they are also noted on the flip-over):

1. **Ensure that the child has the ability to perform the task you are instructing him to do.** (e.g., time, difficulty, and contrary to the distance-instruction).
2. **Give the instruction as a direct statement** (e.g., 'Johnny, pick your toys up off the floor please.') (contrary to chain instruction, question instruction, distance instruction).
3. **Treat your child with respect.** The instruction can be introduced or followed by 'please' without begging.
4. **If you wish to give the child an explanation, give the explanation first.** For example: 'Johnny, it is raining outside and I do not want you to get wet and muddy. Go and put on your raincoat.' (contrary to buried instructions).
5. **Give the instruction once only.** (in reverse to repeated instructions.)
6. **The instruction should be followed by 5-10 seconds of silence.** That is, do not argue, rationalize, or explain once you give the instruction. The child has to comply within these 10 seconds. (unlike chain instruction, repeated instruction, buried instruction).

Appendix K continued

Utrecht Coping Power Parental Component.

* Example of an exercise with a new topic continued:

Note to leaders: if parents ask what they must do if after 10 seconds of silence the child does not comply with the instruction, explain that this is unacceptable behavior. Noncompliant behavior and the parenting skills for dealing with it are taught in another session. For now, after 10 seconds, if the child does not comply, parents should do what they usually do in the case of continued noncompliance.

Show a video fragment: **‘ In the next video you will see a mother giving an instruction to her daughter, who has thrown her bicycle on the floor’.**

Script:

Daughter is coming home with her bicycle and leaves it outside on the path.

Parent: ‘Marline, you are throwing your bicycle in the middle of the path. No one can pass. I want you to pick up your bicycle and bring it to the garage.’

(The daughter reacts very slowly, the parent waits for 10 seconds, and the daughter walks away to get her bicycle).

Discuss the good and bad parts of the instruction showed. Ask whether parents recognize this and what they would do in a similar situation.

Appendix K continued

Utrecht Coping Power Parental Component.

* Example of a summary:

SUMMARY OF THE THIRD SESSION

Behavioral rules are meant to teach children whether or not particular behaviors are acceptable, without repeating these rules each time. For example, we do not want to repeat over and over again that we do not want our children to hit each other; eventually we want them to stop this behavior, by themselves. Behavioral rules are intended for those behaviors that we want our children to control on their own. These are rules that we want them to internalize.

Examples of behavior rules in many families are:

Not hitting, not swearing, not destroying things, saying 'thank you' if you will get something or if someone did do something for you, asking whether you may go playing outside, saying with whom you are going to play (in order to let you know what your child is doing and with whom) etc.

The idea behind the behavioral rules is that if a child transgresses the rule, he/she will immediately experience the (negative) consequence. No warnings are given. The child receives the consequence with the remark: 'because you did hit your brother which is against the behavior rules,will happen'. The consequences for overstepping behavioral rules will be discussed in another session.

Behavioral rules can be divided into prohibitions and expectations.

Prohibitions refer to those behaviors that you want your child to eliminate (e.g., hitting, swearing).

Expectations refer to those behaviors that you want them to adopt as a habit (e.g., asking polite, saying goodbye).

* * *

Monitoring = following your child at a distance, in order to know where he/she is, with whom and what he/she is doing.

* * *

SCHEME 'A - B - C':

A = ANTECEDENT = what happens just before the behavior, what is the situation?

B = BEHAVIOR = the behavior the child is conducting

C = CONSEQUENCE = what follows on the behavior

Appendix K continued

Utrecht Coping Power Parental Component.

* Example of a 'homework assignment':

EXERCISE

On this page you find two examples of an observation form. One is meant for **counting**, the other one for **measuring time**. After these examples you will find several blank forms.

We want you to observe twice a day (over 5 minutes) a particular behavior of your child. It has to be a behavior that is exhibited daily.

Whether you want to count or to measure the time depends on the chosen behavior.

The behavior that you choose does not have to be a problem behavior. The purpose is to practice observation. Nothing more and nothing less. It is important that your child should not know that you are observing. It may be easier (at first) to observe a behavior that you are not involved with (for example it is not advisable to observe the play-behavior of your child while you are playing with him/her).

Below you see an example of measuring time:

Observed: Patty

Age: 7 years

Behavior: Thumb sucking

Kind of observation: measuring of time

DATE	OBSERVATION FROM/TO	MEASURING TIME	SPECIALTIES
17/3	19.00-19.15	1,5 min. 3 min.	Watching the television
18/3	19.00-19.15	2 min. 1 min. 2 min.	Reading a book
.....

Below you see an example of counting:

Observed: husband

Age: 35

Behavior: warning the children

Kind of observation: counting

DATE	OBSERVATION FROM/TO	COUNTING	SPECIALTIES
26/4	18.00-18.30	IIII I (6)	At the dinner table: father, mother and two children
27/4	18.00-18.30	IIII (4)	At the dinner table: father, mother and three children.
.....

Appendix L

Utrecht Coping Power Child Component

* Example of an exercise with a new topic:

(Part of) Session three: *Watching different pictures of states of feeling (20 minutes).*

Using different pictures of states of feeling, we talk in a group about feelings. The therapist picks one picture and asks every child how he/she thinks that the person in the picture is feeling. During the first round, the therapist asks the following questions:

How is the person in the picture feeling?

How do you know? What cues did you use?

Can you always tell what someone is feeling by how they look or what they do?

In a subsequent round (with another picture), questions might be:

How does it work for you? How do you notice that you feel angry/afraid/glad/sad? What do you feel in your body?

How do you behave when you feel angry/afraid/glad/sad? And how do the people around you react to that behavior: positively or negatively?

Conclusion:

Sometimes you cannot tell how someone else is feeling or how you are feeling. The way you behave often causes the reactions of others.

Appendix L continued

Utrecht Coping Power Child Component

* Example of a summary:

Session 17:

AFTER SESSION SEVENTEEN

WHAT WAS IT ABOUT?

We talked about problems with brothers and sisters and how we can solve these with the five steps of problem-solving and by LAFS (Leaving, Asserting, Fighting or Seeking adult assistance).

WHAT DID WE DO AND LEARN?

- We watched a video tape about a conflict between two siblings about bedtime. After that we discussed this problem with the five steps of problem-solving.
- We discussed examples of our own conflicts with siblings. Every one tries to solve one example of a conflict using the five steps of problem-solving. We enacted the best solution to the conflict example, playing the relevant roles.
We found that there are different solutions possible for such conflicts. In addition, we learned that the best solution can differ in different situations. It is not true that there is only one best solution.
- With LAFS it looks like this:

L (leaving)	:	ignoring, leaving, distracting or using humor are most useful when the conflict involves teasing
A (asserting)	:	assertion works best if a sibling has used something without asking, if a sibling has broken a rule or cheated, and if a sibling won't take turns/share
F (fighting)	:	in most cases not a very smart solution
S (seeking adult assistance)	:	this works best if one of the above solutions has been tried and failed

Appendix L continued

Utrecht Coping Power Child Component

* Example of a week assignment:

WEEK ASSIGNMENT SESSION 16

This week we are going to try solving problems again. This time we deal with a conflict you had with a parent or with another adult. It may concern an old conflict, or it may concern a recent conflict. Try every day to think of three solutions for your problem. Then you should think of two consequences for every solution. When you have written down the consequences you need to mark these with a (+) if the consequence is good, with a (-) if the consequence is bad. Finally, choose your best solution.

EXAMPLE			
Problem with parent/adult:			
We had a conflict because I liked to go and play outside, but this was not allowed			
Did you think before you started solving the problem?			
Yes/No (circle the right answer).			
Solution 1:	Going to my room, hitting my pillow a few times and then starting to do something nice		
Solution 2:	Just going outside		
Solution 3:	Going on with the conflict as long as it takes to make sure that in the end I am allowed to go outside		
Consequences of solution 1:			Consequence
	A	I need to cool down but then I can do something nice	+/-
	B	My parent is pleased that I did accept it	+/-
Consequences of solution 2:			
	A	I can go where I want to go	+/-
	B	When I get home there will be more conflicts	+/-
Consequences of solution 3:			
	A	I can go	+/-
	B	It does not work and the conflict is getting worse and worse	+/-
What is your best solution? 1 / 2 / 3			
Put a circle around the number.			

Appendix L continued

Utrecht Coping Power Child Component

* Example of a week assignment continued:

DAY 1		
<p>Problem with parent/adult:</p> <p>.....</p> <p>.....</p>		
<p>Did you think before you started solving the problem? Yes/No (circle the right answer).</p>		
<p>Solution 1:</p>		
<p>Solution 2:</p>		
<p>Solution 3:</p>		
<p>Consequences of solution 1: A</p> <p style="padding-left: 100px;">B</p>		<p>Consequence +/-</p> <p style="padding-left: 100px;">+/-</p>
<p>Consequences of solution 2: A</p> <p style="padding-left: 100px;">B</p>		<p>+/-</p> <p style="padding-left: 100px;">+/-</p>
<p>Consequences of solution 3: A</p> <p style="padding-left: 100px;">B</p>		<p>+/-</p> <p style="padding-left: 100px;">+/-</p>
<p>What is your best solution? 1 / 2 / 3 Put a circle around the number.</p>		

Appendix M

Table 1 Intervention Effect response shift sample: Within-group analysis

Measure	Utrecht Coping Power Program (N = 28)				Care as Usual (N = 33)							
	Pre	Then	Post	Pre-Post	Then-Post	Pre-Post	Then-Post	Then-Post				
	M	M	M	ES	t-value	ES	t-value	ES				
Parent Daily Report												
Problem Behavior (34 max.)	15.21 (5.30)	16.46 (4.72)	9.04 (4.91)	5.24***	1.21	16.67 (5.82)	17.18 (5.41)	12.55 (7.78)	3.49***	0.60	5.47***	0.69
Interview for Antisocial Behavior												
Overt Antisocial	52.59 ^a (11.41)	52.19 ^a (13.70)	44.48 ^a (12.99)	4.51***	0.66	54.64 (11.64)	54.15 (13.07)	48.03 (14.51)	3.16**	0.50	3.77***	0.43
Covert Antisocial	13.81 ^a (3.96)	14.19 ^a (3.21)	13.00 ^a (3.42)	1.03	0.22	15.45 (5.29)	15.24 (5.73)	13.82 (5.39)	2.92**	0.31	3.73***	0.26
Child Behavior Checklist												
Externalizing Behavior	73.61 (6.52)	72.14 (7.61)	68.57 (8.08)	3.76***	0.69	74.76 (7.84)	73.79 (7.96)	69.52 (10.02)	3.23**	0.58	4.49***	0.47
Alabama Parenting Questionnaire												
Positive Involvement	29.89 ^a (3.96)	30.04 ^a (3.75)	31.48 ^a (4.54)	1.93*	0.37	30.30 (4.09)	29.76 (3.73)	29.76 (4.10)	-0.86	-0.13	0.00	0.00
Poor Monitoring	6.96 ^a (1.74)	7.56 ^a (2.62)	7.70 ^a (4.09)	-0.89	-0.24	8.70 (2.92)	9.24 (3.38)	8.21 (2.85)	1.50	0.17	3.59***	0.33
Inconsistent Discipline	10.07 ^a (2.43)	10.56 ^a (3.34)	9.41 ^a (2.39)	1.70	0.27	9.97 (2.70)	10.52 (3.43)	10.15 (2.66)	-0.60	-0.07	0.90	0.12
Corporal Punishment	4.56 ^a (1.37)	4.56 ^a (1.65)	4.22 ^a (1.50)	1.10	0.24	4.45 (1.60)	4.12 (1.52)	4.12 (1.36)	1.32	0.22	0.00	0.00

^a N = 27 * p ≤ .05, ** p ≤ .01, *** p ≤ .001

Note: a positive value indicates an improvement (e.g., decrease in symptoms/'negative' parenting skills or increase in Positive Involvement)

Appendix N

Table 1 Intervention Effect: Differences between mean improvement of parent and child mediator measures in Utrecht Coping Power Program and in Care as Usual

Measure	Pre- minus Posttreatment		<i>t</i> -value
	<i>Utrecht Coping Power Program</i>	<i>Care as Usual</i>	
	M ₁ -M ₂ (SD)	M ₁ -M ₂ (SD)	
Parenting skills of the mother			
Positive Involvement	-1.73 (3.18)	0.68 (3.50)	3.127**
Poor Monitoring	0.11 (1.76)	0.74 (2.08)	-1.413
Inconsistent Discipline	1.14 (1.93)	0.13 (1.99)	2.216*
Corporal Punishment	0.46 (1.24)	0.29 (1.39)	0.558
Parenting skills of the father			
Positive Involvement	-1.45 (3.82)	-0.29 (3.95)	1.199
Poor Monitoring	-0.81 (4.19)	0.56 (3.53)	-1.425
Inconsistent Discipline	1.26 (2.58)	-0.35 (2.19)	2.723**
Corporal Punishment	0.45 (1.46)	0.38 (1.69)	0.176
Social Problem-solving			
Number of Cues	1.05 (7.20)	1.25 (6.66)	0.122
Number of Responses	-1.79 (3.66)	0.47 (3.94)	2.557**
Aggressive Response:			
Percentage of Aggressive Responses ASQ (open)	4.93 (28.41)	9.72 (25.20)	-0.765
Aggressive Responses SPT (open, max. score 200)	-3.62 (15.35)	4.86 (18.00)	-2.184*

Note. a positive *t*-value indicates a larger improvement (e.g., decrease in negative parenting skills or Aggressive Response, or increase in Positive Involvement or Number of Cues and Responses) of the Utrecht Coping Power Program compared with the Care as Usual

* $p \leq .05$ ** $p \leq .01$

Appendix O

Costs per family.

$$\text{Salary} \times \left[\frac{\text{Number of child sessions} \times \text{Mean duration session (min.)}}{\text{Work month in minutes}} \right] + \text{Salary} \times \left[\frac{\text{Number of parent sessions} \times \text{Mean duration session (min.)}}{\text{Work month in minutes}} \right]$$

Number of children in the grouptherapy Number of families in the grouptherapy

Reduced, we get the formula:

$$\text{Salary} \times \left[\frac{\text{Number of child sessions} \times 75}{9360} \right] + \text{Salary} \times \left[\frac{\text{Number of parent sessions} \times 90}{9360} \right]$$

Number of children in the grouptherapy Number of families in the grouptherapy

x = multiplied by

Appendix P

Costs per group.

$$\text{Salary } x \left[\frac{\text{Number of child sessions } x \text{ Mean duration session (min.)}}{\text{Work month in minutes}} \right] + \text{Salary } x \left[\frac{\text{Number of parent sessions } x \text{ Mean duration session (min.)}}{\text{Work month in minutes}} \right]$$

Reduced, we get the formula:

$$\text{Salary } x \left[\frac{\text{Number of child sessions } x 75)}{9360} \right] + \text{Salary } x \left[\frac{\text{Number of parent sessions } x 90}{9360} \right]$$

x = multiplied by

Appendix Q

Decisions about salary per function of the therapist:

Salary	Education/Employment
Scale 9	Social worker Social Psychiatric Nurse Video Home Trainer Specialized Ambulatory Care Worker Creative Therapist Occupational Therapist Psychomotorical Therapist Ergotherapist
Scale 10	Psychotherapist in training Psychologist
Scale 11	Health Care Psychologist
Scale 11a	Psychiatrist in training / Resident psychiatrist
Scale 12	Clinical Psychologist Psychotherapist Behavior Therapist Family Therapist System Therapist

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Curriculum Vitae

Nicolle van de Wiel werd geboren op 26 april 1967 te Son en Breugel. In 1985 behaalde zij het diploma Gymnasium β aan het Van der Puttlyceum te Eindhoven. Na een jaar medicijnen te hebben gestudeerd in Nijmegen, veranderde zij van studie en stad en ging Psychologie studeren in Utrecht. Vanaf 1990 volgde zij ook de studie Pedagogiek. In augustus 1992 werd voor deze beide sociaal wetenschappelijke studies het doctoraal diploma behaald. Op dat moment heeft zij, samen met drie andere sociale wetenschappers een multidisciplinair onderzoeksteam (Groep'86) opgericht. Dit team leverde een bijdrage aan een onderzoek naar de psychosociale situatie van kinderen met een gedetineerde ouder en de interventiemogelijkheden. In de loop der jaren werd Groep'86 een intervisiegroep. In 1993 is Nicolle van de Wiel parttime gaan werken op een kinderdagverblijf en ontwikkelde daar het pedagogisch beleidsplan. De overige tijd werkte zij op het Adoptie Centrum van de Universiteit Utrecht in verschillende functies, onder andere als toegevoegd docent. In 1996 voltooide zij een opleiding tot management voor middenkader. In datzelfde jaar begon zij als toegevoegd onderzoeker bij de Afdeling Kinder- en Jeugdpsychiatrie van het Universitair Medisch Centrum te Utrecht aan het onderzoeksproject dat leidde tot dit proefschrift. Sinds september 2000 is zij werkzaam als penningmeester van de recent opgerichte Werkgroep Onderzoekers in de Psychologie (WOP), binnen het Nederlands Instituut van Psychologen (NIP).

Publication, abstracts/posters and conference presentations

Publication

Van de Wiel N, Matthys W, Cohen-Kettenis P, Van Engeland H Effective treatments of school-aged conduct disordered children: recommendations for changing clinical and research practices *European Child & Adolescent Psychiatry*, accepted December 2001

Abstracts/posters:

Van de Wiel N, Matthys W, Van Engeland H *Randomized Clinical Trial: Two intervention-conditions in referred conduct disordered children* 47th Annual Meeting of the American Academy of Child & Adolescent Psychiatry, New York, United States, October 24-29, 2000

Matthys W, Van de Wiel N, Maassen G, Van Engeland H *The effect of manualized parent training and cognitive behavioral therapy with referred conduct disordered children* 10th Scientific Meeting International Society for Research in Child and Adolescent Psychopathology, Vancouver, Canada June 28- July 1, 2001

Conference presentations:

Nicolle van de Wiel *Geprotocolleerde groepstraining in sociale probleemoplossing voor kinderen met gedragsstoornissen* Symposium 'De beïnvloeding van agressief gedrag in de kinderleeftijd: interventies binnen de hulpverlening en op school' Ede, The Netherlands, June 5, 1998

Nicolle van de Wiel *Geprotocolleerde groepstraining in sociale probleemoplossing voor kinderen met gedragsstoornissen* Invited lecture at the Congress 'Aardig duurt het langst' Amsterdam, The Netherlands, April 9, 1999

Nicolle van de Wiel *Onderzoek naar het effect van geprotocolleerde gedragstherapie bij kinderen met gedragsstoornissen* 27^e voorjaarscongres Nederlandse Vereniging voor Psychiatrie Noordwijkerhout, The Netherlands, April 15-17, 1999

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