FAMILY FUNCTIONING AND CHILD PROBLEM BEHAVIOR:

A LONGITUDINAL STUDY AMONG

REFERRED CHILDREN AND ADOLESCENTS

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Gezinsfunctioneren en probleemgedrag bij kinderen:

Een longitudinale studie bij verwezen kinderen en adolescenten

PROEFSCHRIFT

ter verkrijging van de graad van doctor

aan de Erasmus Universiteit Rotterdam op gezag van de

rector magnificus

Prof. dr P. W. C. Akkermans M.A.

en volgens besluit van het College voor Promoties

De openbare verdediging zal plaatsvinden op

woensdag 27 mei 1998 om 15.45 uur

door

Jacoba Johanna Petronella Mathijssen

geboren te Tilburg

Promotiecommissie

Promotor: Prof. dr F.C. Verhulst
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CHAPTER 1

Introduction

From several theoretical perspectives as well as in psychotherapeutic practice it is assumed that family characteristics have a causal influence on the course of emotional and / or behavioral problems of children and adolescents (e.g., Boszormeny-Nagy & Sparke, 1973; Dadds, 1995; Hetherington & Martin, 1986; Jacob & Tennenbaum, 1988; Minuchin, 1974; Patterson, 1982). However, although there is an enormous amount of evidence for the presence of an association between family functioning and children's problem behavior (e.g., Adams, Overholser, & Lehnert, 1994; Davies & Cummings, 1994; Emery, 1982; Grych & Fincham, 1990; Hollis, 1996; Patterson, 1982; Reid & Crisafulli, 1989; Rollins & Thomas, 1979; Rothbaum & Weisz, 1994; Simons, Robertson & Downs, 1989), it has hardly been shown whether family functioning and family relations, and changes therein are causative of changes in children's internalizing and / or externalizing problem behavior, or vice versa. In other words, empirical support for the above stated assumption is rather lacking. Therefore, the primary aim of the research project which is reported in this thesis was to examine the causal relation between the course of family characteristics and the course of problem behavior in children and adolescents referred to outpatient mental health services.

In order to improve our understanding of the nature and direction of the relation between family characteristics and child problem behavior longitudinal studies are indispensable. Moreover, a unique strength of longitudinal studies is their possibility of revealing both within-individual changes and between-individual differences in change. Especially for the understanding of child psychopathology, individual differences in change of problem behavior and the explanatory variables that account for the variance in change between individuals are of great importance (Loeber & Farrington, 1994; Patterson, 1993; Verhulst & Koot, 1991). In sum, there are two main emphases for analyses of longitudinal data: 1) the modeling of individual change in variables measured at different points in time; 2) the estimation and testing of causal effects (Dunn, Everitt, & Pickles, 1993). In the present research project both

approaches of analyzing longitudinal data were used.

Recent longitudinal studies have demonstrated that aspects of family functioning are valuable predictors of later problem behavior as well as of change and persistence of psychopathology in children (e.g., Asarnow, Goldstein, Tompson, & Guthrie, 1993; Blanz, Schmidt, & Esser, 1991; Campbell, 1994; Esser, Schmidt, & Woerner, 1990; Fergusson, Lynskey, & Horwood, 1996; Hoge, Andrews, & Leschied, 1996; Klein, Forehand, Armistead, & Long, 1997; Seifer, Sameroff, Baldwin, & Baldwin, 1992; Van Furth et al., 1996; Windle, 1992). However, in general these studies have included either nonclinical or only one specified diagnostic group, making it probably impossible to generalize the findings to outpatient children referred for a wide range of emotional and / or behavioral problems. Moreover, most studies had a two-wave design. However, in order to be able to evaluate trends in the change of problem behavior and to obtain a more reliable assessment of associations, repeated measurements are necessary. Therefore, in the present project we examined the longitudinal course of both family functioning and problem behavior and their mutual associations among referred children and their families across a one year interval with two six-months follow-up assessments.

Family Functioning

The systematic study of family characteristics among referred children and adolescents is of critical importance for several reasons. First, the family plays a central role in the children's lives (Fauber & Long, 1991). Second, typically parents seek treatment for their children's problems rather than the children themselves. Third, family dysfunctioning is highly prevalent among clinical samples of children (Verhulst & Van der Ende, 1997). Fourth, most of the parents participate also directly in their child's treatment (Armbuster & Kazdin, 1994). Thus, given the availability of families for possible treatment the identification of the role family characteristics can play in the developmental course of psychopathology may have important consequences for intervention purposes.

Unfortunately, follow-up studies of family functioning among children and adolescents referred for mental health services are scarce. Besides, although studies of family characteristics after treatment of children have revealed that positively qualified relationships

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and highly structured family functioning were related to better outcome (Veerman, 1995; Wewetzer, Deimel, Hepertz-Dahlmann, Mattejat, & Remschmidt, 1996) it is not yet clear whether changes or the stability in family functioning were responsible for the associations, since earlier levels of family functioning were not taken into account.

One of the major challenges in family research is the measurement of family functioning. First, family functioning can be assessed in different ways. Generally speaking there are two broad approaches of measurement, i.e., family experience and family relationship questionnaires (Oud, 1990). Family experience instruments are characterized by the fact that they measure individual family members' perception of the family as a whole. Alternatively, family relationship questionnaires measure the individual's perception of his / her relationship with other family members. In the present study we examined both ways of measuring family functioning, using ratings of both mothers, fathers, and children.

Second, although it is widely recognized that for the assessment of family functioning there is a need for responses of multiple informants, until now little empirical knowledge exists on how to handle information from different sources. Therefore, we examined different ways of aggregating data using both family experience and family relations questionnaires.

The Course of Problem Behavior

In order to obtain a comprehensive picture of the child's problem behavior, it is necessary, as is the case with the assessment of family functioning, to gather data from multiple sources. In the current project we obtained child problem ratings from both parents and teachers.

Information on the continuity and change of problem behavior, and the factors which are associated with change in problem behavior scores among children referred for mental health services is of both theoretical and practical importance. Although the emphasis in the present study lies on the influence of family characteristics on the course of child problem behavior it is important to keep in mind that the development of child problem behavior is multifactorially determined. As a consequence it is unlikely that a single set of causal factors can effectively predict the development of emotional and / or behavioral problems of children. Therefore, in addition to family characteristics we examined also the predictive influence of child characteristics, which are known to be associated with problem behavior, such as

gender, age, temperament and intelligence, and intervening stressful life-events on the change of both parent and teacher rated problem behavior.

Aims of the Present Report

The present project aimed to answer the following research questions:

1. What are reliable and valid ways to assess aspects of family functioning? What are reliable and valid ways to aggregate family members' perceptions on whole family functioning and family relations into composite scores.

2. To what extent are child characteristics, i.e., sex, age, temperament and intelligence level, and aspects of family functioning, i.e., perceptions on whole family functioning and family relations, cross-sectionally associated with problem behavior in children and adolescents aged 9 to 16 years, referred for emotional and / or behavioral problems?

3. What is the one-year developmental course, in terms of stability and change, of child problem behavior in a clinical sample?

4. What is the one-year developmental course, in terms of stability and change, of family functioning in a clinical sample?

5. To what extent are child characteristics, i.e., sex, age, temperament, and level of intelligence, and family functioning and the changes herein, and stressful life-events predictive for the course of problem behavior?

6. Are family functioning and child problem behavior, i.e., internalizing and externalizing behavior, bidirectionally related to each other across time ? More specifically, are family functioning and child problem behavior both a predictor and a consequence of each other?

7. What is the outcome of the sample one year after referral, in terms of parent perceived changes in child problem behavior and family functioning, the need for professional help, and the course of treatment?

Table 1.1

Design of the Study: Used Variables and Instruments

Variables	Instruments	Time 1 n	Time 2 n	Time 3 n
Child Characteristics				
Temperament:	DOTS-R	222	-	-
Intelligence:	WISC-R	212	-	-
Child Problem Behavior				
Parent ratings:	CBCL	216	194	186
Teacher ratings:	TRF	184	144	135
Family Functioning				
Whole family functioning:	FDS			
children		220	187	180
mothers		214	187	179
fathers		154	128	113
Family Relations:	NFRT			
child-mother		219	185	177
child-father		170	146	141
mother-child		215	188	180
mother-father		162	141	137
father-child		150	128	115
father-mother		145	124	112
Stressful Life-Events				
	LEQ	-	194	186
Outcome				
	POQ			
mothers		-	188	181
fathers		-	119	113

Note. DOTS-R = Revised Dimensions of Temperament Survey; WISC-R = Wechsler
Intelligence Scale for Children-Revised; CBCL = Child Behavior Checklist; TRF = Teacher's
Report Form; FDS = Family Dimensions Scales; NFRT = Nijmegen Family Relations Test;
LEQ = Life Events Questionnaire; POQ = Parent Outcome Questionnaire.

Project Design

To answer these questions, a longitudinal study with two six-months follow-up assessments was conducted among families with children aged 9 to 16 years, referred to three outpatient mental health agencies. Parents, children as well as teachers were included in our project. Table 1.1 shows the variables and instruments used at each time and the number of raters for each of the different instruments.

In total, 223 families participated in our study, consisting of 141 boys and 82 girls (mean age = 11.4 years, SD = 2.2) and one or both of their parents. One hundred ninety-four families (87.0%) participated in the first follow-up assessment (Time 2) and 186 families (83.4%) participated in the second follow-up assessment (Time 3). One hundred eighty families (80.7%) took part in all three times of assessment.

Structure of the Present Report

In *Chapter 2*, two different ways of aggregating individual family members' perceptions on cohesion and adaptability into composite scores of family functioning are presented. Besides the associations between mothers', fathers', and children's individual perceptions of family functioning versus the two composite scores, i.e., family mean and family discrepancy, and both parent- and teacher-rated problem behavior are examined. Finally, both family scores are compared regarding their relationship with child problem behavior.

In *Chapter 3*, the relative association between the quality of the relationship of different family dyads, i.e, the mother-child, the father-child, and the mother-father relationship, and child problem behavior as judged by parents as well as by teachers are examined. Moreover, the association of various patterns of family relations, i.e., the cumulative risk model, the protective model, and the cross-generational coalition, based on the combinations of the marital and both parent-child relationships, with child psychopathology are studied.

Chapter 4 describes the half-year and one-year stability and change of parent and teacher-rated child problem behavior. Further, the predictive influence of child characteristics, i.e., sex, age, temperament, and level or intelligence, family relations, and intervening stressful life-events on the change of child problem behavior are investigated.

The half-year and one-year stability and change of dyadic family relation scores as reported

by each of the different family members are assessed in *Chapter 5*. Moreover, in this chapter it is examined whether interindividual differences in rate of change in family relations were associated with interindividual differences in rate of change in child problem behavior scores.

In *Chapter 6* the cross-lagged effects between the mother-child, the father-child, and the marital relationship and both internalizing and externalizing behavior are inquired. By using latent variables instead of measured variables more precise estimates of 'true' relationships are obtained.

Chapter 7 summarizes the one-year outcome of the referred sample in terms of parent perceived changes in child problem behavior and family functioning, the need for professional help, and state of treatment, i.e., completed, dropped out, or still under treatment. Furthermore, the predictive influence of child characteristics, family relations, and stressful-life events on perceived changes and need for help are investigated. Finally, both pretreatment and one-year outcome differences between completers, dropouts, and ongoing patients will be described.

Finally, in *Chapter 8* the results of the foregoing chapters will be discussed. Moreover, theoretical, research and clinical implications are given.

CHAPTER 2

Family Functioning and Child Psychopathology:
Individual versus Composite Family Scores

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Abstract

This study examined the relationship of individual family members' perceptions and family mean and discrepancy scores of cohesion and adaptability with child psychopathology in a sample of 138 families, referred to Regional Mental Health Agencies. The results indicate that the family mean scores, contrary to the family discrepancy scores, explain more of the variance in parent-reported child psychopathology than individual scores. Implications for future research and clinical practice are discussed.

Introduction

From different perspectives, such as sociological, psychological and family systems theory, it is assumed that the family plays an important role in the development and maintenance of psychopathology in children (Hetherington & Martin, 1986; Jacob & Tennenbaum, 1988).

A major problem in family research is to obtain information that will reflect the family as a unit and yield true family characteristics (Fisher, Kokes, Ransom, Philips, & Rudd, 1985). Although researchers recognize that responses of multiple family members are needed to obtain a more representative view of the family, collecting data from more than one family member does not automatically yield family data. Still, in the majority of studies on the relation between family functioning and child psychopathology, the individual scores of different family members are not aggregated to construct a family-based measure (Blaske,

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Borduin, Henggeler, & Mann, 1989; Farrell & Barnes, 1993; Friedman, Utada, & Morrisey, 1987; Kiser et al., 1988; Natakusumah et al., 1992; Prange et al., 1992; Volk, Edwards, Lewis, & Sprenkle, 1989; Watson, Henggeler, & Whelan, 1990). In these studies conclusions are drawn at the family level from data collected at the level of the individual family member. Individual perceptions of family functioning may have considerable value and may show relations with psychopathology in family members, but they are by definition not appropriate to draw conclusions about the relation between the functioning of the family as a unit and the individual's psychopathology. A challenging question is then how scores based on individual perceptions should be combined into a family score. This is not an easy task, because family members, in particular children and their parents, differ considerably in their perception of the family (Noller & Callan, 1986; Tein, Roosa, & Michaels, 1994). Some researchers question aggregation because of the differences between family members (Tein et al., 1994), whereas others argue in favor of aggregation (Schwarz, Barton-Henry, & Pruzinsky, 1985). However, this lack of high agreement should not prevent us from exploring ways to treat data from different family members (cf. Wampler & Halverson, 1993). For example, Jacob and Tennenbaum (1988) made a plea for the development of composite scores from individual reports followed by a comparison of the individual and composite scores regarding their relationship with key variables.

The examination of both individual and family composite scores is important, because it provides the opportunity to investigate whether it is valuable to compute family scores. In the present study we used two different family scores, i.e., the mean of individual family members' scores and the discrepancy between scores of individual family members regarding family functioning, in order to examine their relative association with child problem behavior. Especially for clinical purposes, this information is very important. However, as far as we know, this comparison has never been addressed in previous research.

The computation of an arithmetic mean offers the possibility of locating the family on a scale relative to other families, but has the disadvantage of blurring individual differences. Until now, in studies in which a mean family score was computed (Rodick, Henggeler, & Hanson, 1986; Smets & Hartup, 1988), no comparisons were made between the relations with child psychopathology found at the level of individual scores of family functioning and scores

aggregated at the family level. Several studies have shown that the reliability of ratings can be increased by averaging different respondent's ratings into a composite score (e.g., Horowitz, Inouye, & Siegelman, 1979; Rushton, Brainerd, & Pressley, 1983; Schwarz et al., 1985). Since reliability is a prerequisite to validity we expected that aggregated family mean scores would be more highly associated with child problem behavior than individual scores of family functioning.

A family discrepancy score, on the other hand, has the advantage of highlighting differences between family members, but the disadvantage of not reflecting score levels. Both developmental psychology and family systems theory emphasize the significance of similarity in perceptions between family members for the development of children. Most research of the relation between family discrepancy and child psychopathology has been particularly concentrated on disagreement between parents (e.g., Block, Block, & Morrison, 1981; Deal, Halverson, & Wampler, 1989; Vaughn, Block, & Block, 1988). These studies have demonstrated that discrepancy between parents on child-rearing orientations was negatively related to psychological functioning of children. However, less is known about the relation of discrepancy between fathers, mothers, and children, and child problem behavior.

A priori, it is very difficult to predict whether discrepancy between family members would have a positive, negative, or no effect on child problem behavior. The concept of discrepancy could be considered from two essentially different perspectives. First, dissimilarity in perceptions may be seen as reflecting a negative family environment. Support for this idea stems from studies by Barnes (1988), and Larsen and Olson (1990), who found that high levels of discrepancy between fathers, mothers, and children were significantly related to higher levels of family stress, lower family satisfaction, and poorer parent-child communication. Each of these variables may, for their part, result in higher levels of problem behavior. Dissimilarity may also cause conflicts between family members, which could lead to more problematic behavior in children. On the other hand, dissimilarities in perceptions between children and their parents may only reflect a struggle for independence, particularly for adolescents (Larsen and Olson, 1990; Tein et al., 1994). In that case, discrepancy would not automatically be related to higher child problem behavior scores.

We examined the relations between child problem behavior, and two well-known

dimensions of family functioning, cohesion and adaptability (Olson, Sprenkle, & Russell, 1979) both at the individual and at the family level. Family system theory has stressed the importance of cohesion and adaptability in the development of psychopathology in children (Hetherington & Martin, 1986; Smets & Hartup, 1988). Empirical support for this relation has been found in studies of nonclinical populations as well as in studies of clinical samples. However, authors disagree about the nature of the relation between these two dimensions and problem behavior. Olson et al. (1979) have argued that cohesion and adaptability are curvilinearly related to psychological functioning of individual family members. This means that children in both overly cohesive and undercohesive families and children in overly adaptive and underadaptive families are expected to show more problem behavior than children from moderately cohesive and adaptive families. Theoretically, highly cohesive families are thought to promote overidentification with family members and to prevent differentiation and individuation among them. Low cohesive families are believed detrimental as they promote limited intimacy, and unusually great autonomy (Minuchin, 1974). Families with an extremely high adaptability are assumed to have no clear social rules, erratic leadership and a laissez-faire discipline. On the other hand, families with an extremely low adaptability are supposed to have rigid social rules, authoritarian modes of discipline and no negotiated problem solving (Smets & Hartup, 1988). These characteristics of too much or too little cohesion and adaptability are considered detrimental for the development of children.

Empirical studies on the relation between cohesion and adaptability with problem behavior have produced conflicting results. Linear associations (e.g., Cumsille & Epstein, 1994; Feldman, Rubenstein, & Rubin, 1988; Fendrich, Warner, & Weissman, 1990; Garrison, Addy, Jackson, McKeown, & Waller, 1991; Prange et al., 1992), curvilinear associations (Rodick et al., 1986; Smart, Chibucos, & Didier, 1990; Smets & Hartup, 1988), linear and curvilinear associations within one study (Farrell and Barnes, 1993; Henggeler, Burr-Harris, Borduin, McCallum, 1991) as well as no associations (Vandvik & Eckblad, 1993) have been found. The conflicting results with regard to the nature of the relationship with problem behavior could be attributed to two different causes. First, studies by Farrell and Barnes (1993), Prange et al. (1992), and Watson et al. (1990) have demonstrated that the association between cohesion and adaptability and problem behavior could be different for the different family

members. Studies cited above have used various samples, ranging from only adolescents, mothers and adolescents, mothers and fathers, to fathers, mothers, and children. Second, not all researchers used statistical analyses which were appropriate to test whether the relation should be regarded as linear or curvilinear. However, studies in which both effects were tested have generally found more linear than curvilinear relationships (Farrell & Barnes, 1993; Prange et al., 1992; Rudd, Stewart, & McKenry, 1993; Watson et al., 1990). In keeping with these latter findings, we expected that high cohesion would be associated with less problem behavior. Contrary to the above mentioned studies, in our study adaptability was operationalized in terms of the amount of chaos in the family. Therefore, we expected that low adaptability would be associated with less problem behavior.

The relationship between family functioning and child psychopathology could be disguised because of the effects of child characteristics such as age, sex, and intelligence. Therefore, it is important to take these characteristics into account in performing statistical analyses. Evidence for these confounding effects was found in several studies. For example, results from the study by Smets and Hartup (1988) suggested that the relationship between family functioning and child psychopathology is stronger for younger children than for adolescents. With regard to the influence of sex, in a study by Cumsille and Epstein (1994), only for boys a significant negative association between cohesion and depression was found. Negative associations have been found between IQ and behavior problems (Cook, Greenberg, & Kusche, 1994; Goodman, 1995; Schonfeld, Shaffer, O'Connor, & Portnoy, 1988). Furthermore, Prange et al. (1992) found that older, more intelligent adolescents viewed their family as less cohesive than younger, less intelligent adolescents. In many studies, the effects of age and sex of the child have been controlled, but the influence of intellectual functioning is almost never taken into account. In this study, we controlled for both the child's age, sex, and level of intelligence.

In sum, the purpose of the present study was twofold. First, we compared the relative strength of the relationship of mothers', fathers', and children's individual perceptions about the family versus two aggregated scores, family mean and family discrepancy, with child problem behavior. Second, we compared the two family scores with regard to their relationship with child psychopathology. Given the different nature of both family scores, it is

difficult to predict which of these two would yield the strongest relations.

Method

Subjects

The sample was selected from families, referred to one of three Regional Mental Health Agencies (RMHAs) in the Dutch province of Zuid-Holland (South-Rotterdam, Capelle aan den IJssel, or Delft). To be included in the sample, families and children had to meet the following criteria: children were between 9 and 16 years old; the children were not diagnosed as mentally handicapped or autistic; parents and children had enough command of the Dutch language to fill-in questionnaires; they were not referred to another institute immediately after intake; the children were the immediate reason for the referral; both parents were informed about the referral; and the child had lived for more than half a year in the current family.

Between March 1993 and December 1994, 471 families with children between 9 and 16 years old were referred to one of the three RMHAs, 401 of them met the criteria for inclusion in our study.

At intake, the study was explained to parents by a mental health worker of the RMHA. At the same time parents were asked for participation. However, 57 families were not asked for participation. In 47.4% of these cases (27 families) the mental health worker forgot to introduce the study, and it was not possible to ask for participation later on, because the family had just a single consultation. For only 14 families (24.5%), the mental health worker purposely did not introduce the study. Motives mentioned were: resistance against testing, crisis situation, or the study was too much of a burden to the family or child.

Of the 344 remaining families, 223 (64.8%) participated in our study. Of these families, 168 were intact. A subsample of 138 (82.1%), for whom complete data on the Family Dimensions Scales (Buurmeijer & Hermans, 1988) and on the WISC-R (Van Haasen et al., 1986) were available, was selected for the present study. The families with complete data and the families with missing data were compared with respect to cohesion and adaptability scores, problem behavior, children's intelligence level, and the parental occupational and educational level. No significant differences were found for cohesion, adaptability, problem behavior, parental occupational level, and mothers' educational level. However, children from

families with complete data scored higher on intelligence ($t = 2.51$, $p \leq .01$), and fathers scored higher on educational level ($t = 1.95$, $p \leq .05$) than children and fathers in the families with missing data.

The remaining sample consisted of 94 boys and 44 girls (mean age = 11.2 years, $SD = 2.2$). The mean age of fathers was 40.10 years ($SD = 5.5$), and of mothers 38.3 years ($SD = 5.1$). The mean occupational level of fathers on a 6-point scale (1 = unskilled employees, 6 = executives, major professionals, or owners of large businesses; Van Westerlaak, Kropman, & Collaris, 1975) was 3.41 ($SD = 1.56$), and of mothers 2.87 ($SD = 1.13$). Mean parental educational level according to a 7-point scale (7 = highest; Standard Educational Classification, CBS, 1987) was 3.32 ($SD = 1.82$) for fathers, and 3.00 ($SD = 1.53$) for mothers. Of the parents, 88.4% were married, 10.2% were cohabiting, and 1.4% had a partner, but were not living together. In 81.9% of the cases, the child was living with both biological parents, 12.3% with the biological mother and partner, 1.4% with the biological mother alone, 1.4% with their biological father and partner, 2.2% with adoption, and 0.7% with foster parents. Main reasons for referral, based on information from the parents, were emotional problems (49.3%), behavior problems at home (41.3%), problems in child-peer relationships (30.4%), behavior problems at school (20.2%), school and learning problems (18.8%), problems in the parent-child relationship (18.8%), sleep and/or eating problems (16.7%), and problems in child-sibling relationships (13.8%). For 109 (79.0%) children, two or three problems were mentioned.

Procedure

If parents agreed to participate, they were contacted by telephone to make further appointments. The assessment session was scheduled at one of the three RMHAs, except in 4% of the families, in which the parents preferred that the session take place in their home. At the outset of the session, the interviewer explained the procedure and obtained written consent from the parents. The parents were interviewed about demographic characteristics, the reasons for referral, and earlier treatment for mental health problems of the child or other family members. Next, parents and children completed the Family Dimensions Scales (FDS; Buurmeijer & Hermans, 1988). All families had received a Child Behavior Checklist (CBCL;

Achenbach, 1991a) at intake. Only those parents, who did not already complete this questionnaire filled it in at our assessment session. The items of the FDS were read aloud to the children by a research assistant. The intelligence level of the children was tested with the Dutch version of the Wechsler Intelligence Scale for Children-Revised (WISC-R; Van Haasen et al., 1986). After obtaining the parents' consent to gather information from the child's behavior at school, the Teacher's Report Form (TRF; Achenbach, 1991b) was sent to the teacher.

Measures

Family Functioning. The *Family Dimensions Scales* (Buurmeijer & Hermans, 1988) are based on the Family Adaptability and Cohesion Evaluation Scales developed by Olson (FACES I and II: Olson, Bell, & Portner, 1978; Olson, Portner, & Bell, 1982), but it is not a direct translation of the FACES. The FDS comprises of 44 4-point items, and is designed to measure an individual family member's perception of the family across the dimensions cohesion and adaptability. The cohesion scale consists of 23 items, and the adaptability scale consists of 13 items. The remaining 8 items give an impression of how family members present their family to an outsider. *Cohesion* is the emotional bonding that family members have toward one another (e.g., 'In our family everyone goes his / her own way,' 'Most family members feel lonely at home'). Following Olson et al. (1978, 1982), Buurmeijer and Hermans (1988) have defined four levels of cohesion ranging from extremely low cohesion to extremely high cohesion and labelled *disengaged, separated, connected,* and *enmeshed. Adaptability* is the amount of change in power structure, role relationships and relationship rules. In comparison to the FACES the accent of adaptability in the FDS is more on change than on the ability to change (e.g., 'In our family, the rules change constantly', 'In our family, the opinions and wishes change continually'). Also four levels of adaptability have been defined and labelled as *rigid, structured, flexible,* and *chaotic.* Buurmeijer and Hermans (1988) reported internal consistencies of .87 for the cohesion scale and .81 for the adaptability scale. Internal consistencies found in this study were considerably lower: Cronbach's alphas computed for mothers, fathers, and children in this study were for the cohesion scale .63, .63, and .56, respectively, and for the adaptability scale .66, .74, and .44, respectively. A study by

Buurmeijer and Hermans (1988) demonstrated the discriminitative validity of the FDS. Fathers, mothers, and children from families having a child with a DSM-III diagnosis conduct disorder scored lower on cohesion and higher on adaptability than their counterparts in a non-referred comparison group.

Problem Behavior. *The Child Behavior CheckList 4-18* (Achenbach, 1991a) and the *Teacher's Report Form* (Achenbach, 1991b) were used to obtain standardized parent and teacher reports on children's behavioral/emotional problems. The CBCL and the TRF both contain 120 problem items to which the respondent can answer '0' if the problem item is not true of the child, '1' if the item is somewhat or sometimes true, and '2' if it is very true or often true. Of the problem items, 95 are the same in both instruments. By summing 1s and 2s eight syndromes (*Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior*, and *Aggressive Behavior*), two broad-band groups of syndromes, *Internalizing* and *Externalizing*, and a *Total Problem* score can be computed. The Internalizing group consists of the Withdrawn, Somatic Complaints, and Anxious/Depressed syndromes. The Externalizing group consists of the Aggressive and Delinquent Behavior syndromes. The discriminative validity for both the Dutch version of the CBCL and the TRF was demonstrated in several studies (Verhulst & Akkerhuis, 1986; Verhulst, Akkerhuis, & Althaus, 1985; Verhulst, Berden, & Sanders-Woudstra, 1985).

In 6 cases, the CBCL was completed by the mother alone, in 2 cases by the father alone, and in 56 cases by both parents together. For 74 families, both parents filled in a CBCL separately. The scores for these parents were summed and divided by two. Levene's tests for homogeneity of variances were performed to test differences of variances between the group of parents who filled in the CBCL jointly, and the group of parents who filled it in separately. These tests revealed differences for Delinquent Behavior, Internalizing, and Externalizing scores. The variance in Delinquent Behavior and Externalizing scores was larger for the group who filled in the CBCL separately ($F = 8.77, p \le .01$, difference $= 6.85$, and $F = 3.98, p \le .05$, difference $= 39.46$, respectively), whereas the variance in Internalizing scores was larger for the group who filled in the CBCL together ($F = 4.99, p \le .05$, difference $= 30.02$). The TRF was completed by 120 different teachers separately for each child.

Pearson product-moment correlations between the eight CBCL syndromes ranged from .05

(between Somatic Complaints and Delinquent Behavior) to .66 (between Withdrawn and Anxious/Depressed) with an average correlation of .35. Pearson product-moment correlations between the eight TRF syndromes ranged from .03 (between Somatic Complaints and Aggressive Behavior) to .69 (between Delinquent and Aggressive Behavior) with an average correlation of .40. CBCL Internalizing and Externalizing as well TRF Internalizing and Externalizing scores correlated .31 with each other.

Intelligence. Because an estimate of an intelligence level was deemed adequate for our study, we did not conduct a full intelligence test. Two verbal (Vocabulary, Similarities) and two performance (Block Design, Picture Arrangement) subtests of the *WISC-R* (Van Haasen et al., 1986) were used to assess the children's level of intelligence. These subtests were selected because of their high correlations with the full scale score ($r = .90$; Silverstein, 1970). Raw subtest scores were transformed into normalized standard scores for each age separately, according to Dutch norms. The normed scores of each individual for each subtest were summed and divided by four to get one score of intelligence. The mean level of intelligence with a theoretical range of 1-19 was 9.8 ($SD = 2.3$).

Results

Descriptive Data

Complete data were available for 138 families for parent-rated problem scores, and for 120 families for teacher-rated problem scores.

Comparing the normative distributions across the four levels of cohesion (disengaged, separated, connected, and enmeshed) and adaptability (rigid, flexible, structured, and chaotic; Buurmeijer & Hermans 1988) to the distributions in this study, a significant difference was found only for children on the cohesion scale ($\chi^2 = 2.26$; $p > .05$; 1.64; $p > .05$, and 11.25; $p \leq .01$, for mothers, fathers, and children, respectively). Children in this sample reported their families as more disengaged, less connected, and less enmeshed than children in the normative sample. The comparison of the adaptability scores of this sample with the Dutch norms revealed significant differences for all family members ($\chi^2 = 8.19$; $p \leq .05$; 8.93; $p \leq .05$, and 71.23; $p \leq .01$, for mothers, fathers, and children, respectively). Mothers in this sample rated their families as less structured, and more chaotic, fathers rated their families as

less flexible and more structured, and children rated their families as less rigid, less structured, and more chaotic than their counterparts in the normative sample.

To obtain information on the possible typicality of this referred sample, CBCL and TRF total problem scores were compared to those obtained in a large sample of children of comparable age and sex ($N = 2004$, $N = 1692$ for CBCL and TRF scores, respectively) referred to any RMHA in the Rotterdam region during a specified 18-month period (Verhulst, Van der Ende, & Koot, 1996). This comparison revealed no significant differences. This means that the level of problem behavior found in our sample is comparable to that of a general sample of referred children.

Preliminary Analyses

In order to evaluate whether in the analyses of the relationship between cohesion and adaptability and problem behavior a linear or curvilinear approach to the data should be chosen, the following preliminary analyses were performed. A MANOVA design was used with polynomial contrasts between the four levels of the factors cohesion and adaptability and problem behavior scores as dependent variables. Since the results did not reveal evidence of curvilinearity, and because, in the present study's sample, the distribution across the four levels of cohesion and adaptability was very skewed, we used the raw scores of cohesion and adaptability in further analyses. The relations between these two family dimensions and problem behavior were treated as linear in the present study.

Family mean cohesion and family mean adaptability scores were derived by summing the cohesion and adaptability scores separately for fathers, mothers, and children, and dividing the sum by three. Family discrepancy scores were calculated by computing the absolute differences between the family mean and the cohesion and adaptability scores for each family member, and summing these difference scores into a cohesion discrepancy score and an adaptability discrepancy score. Cronbach's alphas computed for the family mean scores on the basis of the three individual family members' raw scores were .67 and .62, and for the family discrepancy scores based on the three individual discrepancy scores were .63 and .49 for cohesion and adaptability, respectively.

Table 2.1

Correlations between individual family members' cohesion and adaptability scores
and family composite scores ($N = 138$)

	Cohesion				
	Mothers	Fathers	Children	FM	FD
Mothers	.07	.29**	.44**	- .17*	.75**
Fathers	.46**	.00	.35**	- .12	.70**
Children	.35**	.43**	.15	- .09	.82**
Family Mean	.76**	.81**	.77**	-	- .16
Family Discrepancy	.05	- .03	- .39**	- .16	-
	Adaptability				
Mothers	- .16	.02	.38**	.09	.64**
Fathers	.52**	- .31**	.29**	.08	.58**
Children	.16	.36**	.55**	- .04	.86**
Family Mean	.75**	.84**	.66**	-	.04
Family Discrepancy	- .21**	- .22**	.56**	.04	-

Note. Correlations between individual discrepancy scores and family scores are displayed above the diagonal. Correlations between raw individual scores and family scores are displayed below the diagonal. Correlations between raw individual scores and individual discrepancy scores are given at the diagonal. FM = Family Mean; FD = Family Discrepancy. * $p \le .05$. ** $p \le .01$.

Pearson product-moment correlations were computed to determine the associations among the individual family members' raw and discrepancy scores, between the individual family members' raw and discrepancy scores and the family mean and discrepancy scores, and among the two family scores. These correlations are presented in Table 2.1.

Relation of Individual and Family Cohesion/Adaptability Scores with Problem Behavior

In order to test the relationship between family functioning and problem behavior, multivariate regression analyses were used with cohesion and adaptability as independent variables, problem behavior scores as dependent variables, and age, sex, and intelligence as covariates. Given the relatively high correlations between the scores of mothers, fathers, and

children (see Table 2.1), the regression analyses were run for each family member separately, in order to avoid multicollinearity. Because the family mean and the family discrepancy scores were not significantly correlated for either cohesion or adaptability, these two family scores were allowed to compete within one regression analysis. Because of the significant moderate relationships between the Internalizing and Externalizing scores, and between the eight syndrome scores for both the CBCL and the TRF scores, multivariate regression analyses were performed. These analyses were executed for the CBCL data on two sets of dependent measures, the first set including the Internalizing and Externalizing scores, and the second set including the eight syndrome scores. These analyses were repeated for mothers, fathers, children, and the family (mean and discrepancy) cohesion and adaptability scores. The same multivariate regression analyses were performed on the TRF data. In total, 32 regression analyses were executed.

Cohesion. Table 2.2 shows proportions of variance in CBCL problem behavior explained by each cohesion score. First, the multivariate and univariate effects on the CBCL Internalizing/Externalizing set are mentioned, and then the effects on the syndrome scores are given.

Significant multivariate effects on Internalizing and Externalizing scores were found for all individual scores as well as for the family mean score. Higher individual cohesion scores, and higher family mean cohesion were associated with less Externalizing. Only for mothers were higher cohesion scores also associated with less Internalizing. Proportions of variance explained in CBCL Internalizing and Externalizing by family mean scores were about two times larger than for fathers' and children's scores, and about 1.5 times larger than for mothers. However, the analyses on the relation between cohesion and CBCL-syndromes revealed no significant multivariate effects for any of the scores.

The comparison of both family variables revealed that only the mean score was significantly related to problem behavior. The family mean score explained five times as much of the variance in Internalizing and Externalizing as did the family discrepancy score. This was especially expressed in the stronger influence of the family mean on Externalizing.

Table 2.2

Effects of Cohesion on CBCL Problem Behavior ($N = 138$)

	Cohesion				
	Mothers	Fathers	Children	Family Mean	Family Discrepancy
Pillais' Multivariate Test (F)	*5.45****	*4.07**	*3.64**	*7.18****	*1.57*
Multivariate Effect Sizes	.08	.06	.05	.10	.02
Univariate (Effect Sizes)					
Internalizing	.03	-	-	-	-
Externalizing	.06	.06	.05	.09	-
Pillais' Multivariate Test (F)	*1.55*	*1.73*	*1.52*	*1.93*	*1.13*
Multivariate Effect Sizes	.09	.10	.09	.11	.07
Univariate (Effect Sizes)					
Withdrawn	.04	-	-	.03	-
Somatic Complaints	-	.03	-	-	-
Anxious/Depressed	-	-	-	-	-
Social Problems	.03	-	-	-	.03
Thought Problems	-	-	-	-	-
Attention Problems	.04	-	.04	.05	.05
Delinquent Behavior	.04	.06	.04	.07	-
Aggressive Behavior	.06	.04	.05	.08	-

Note. Entries indicate proportions of variance in CBCL Problem scores explained by FDS Cohesion scores. * $p \le .05$. ** $p \le .01$.

The analyses on the TRF Internalizing/Externalizing set yielded no significant overall effects. The analyses of TRF-syndrome scores revealed only a trend for a multivariate cohesion effect for children ($F (8,108) = 1.84, p = .08$).

Adaptability. Table 2.3 presents the proportions of variance in CBCL problem behavior explained by each adaptability score. First, the multivariate and univariate effects on the CBCL Internalizing/Externalizing set are mentioned, and then the effects on the syndrome

scores are given.

Table 2.3

Effects of Adaptability on CBCL Problem Behavior (N = 138)

	Mothers	Fathers	Children	Family Mean	Family Discrepancy
			Adaptability		
Pillais' Multivariate Test (F)	5.18**	6.03**	2.16	7.92**	1.22
Multivariate Effect Sizes	.07	.08	.03	.11	.02
Univariate (Effect Sizes)					
Internalizing	.05	.04	-	.06	-
Externalizing	.05	.07	-	.08	-
Pillais' Multivariate Test (F)	1.79	2.03*	0.96	2.63**	0.96
Multivariate Effect Sizes	.10	.11	.06	.14	.06
Univariate (Effect Sizes)					
Withdrawn	-	-	-	.04	-
Somatic Complaints	.04	.03	-	.06	-
Anxious/Depressed	.03	-	-	.04	-
Social Problems	-	-	-	-	-
Thought Problems	-	-	-	-	-
Attention Problems	-	-	-	-	-
Delinquent Behavior	-	.05	-	.05	-
Aggressive Behavior	.05	.06	-	.08	-

Note. Entries indicate proportions of variance in CBCL Problem scores explained by FDS Adaptability scores.
* $p \le .05$. **$p \le .01$.

Significant multivariate effects for mothers', fathers', and the families' mean adaptability emerged for CBCL Internalizing and Externalizing. Adaptability univariate effects were observed for both Internalizing and Externalizing scores. The results indicated that for children from more adaptive families, more Internalizing and more Externalizing problems were reported. Family mean scores explained about 1.5 to 3 times as much of the variance in

Internalizing/Externalizing as did individual scores. Overall effects were found for fathers and the family mean on CBCL syndrome scores. The greatest difference was found in the comparison between the family mean and children's individual scores. Family mean adaptability explained twice as much of the variance in CBCL syndrome scores as did children's adaptability.

The comparison of family mean and family discrepancy scores demonstrated that only family mean scores accounted significantly for variance in both Internalizing/Externalizing and the CBCL syndrome scores.

The analyses of TRF Internalizing/Externalizing scores revealed no significant multivariate effects. For the TRF syndrome scores, only a trend was found for mothers' adaptability (F $(8,108) = 1.91, p = .07$).

Discussion

The first purpose of this study was to examine individual scores of cohesion and adaptability and scores aggregated at the family level regarding their relationship with child psychopathology. The second aim was to compare two different family composite scores, mean and discrepancy, in relation to child psychopathology.

The results suggest that aggregating individual family member's scores into a family mean score can be valuable. Theoretically, family functioning is hypothesized to influence the functioning of its individual members. Since family functioning can only be assessed by studying more than one family member, individual scores on a family assessment questionnaire should be aggregated into a family composite score. If this family score is more strongly related to psychopathology than the individual perceptions about the family, this would be a confirmation of the theoretical assumption of a relation between family functioning and child psychopathology. In all cases, the family mean explained more of the variance in CBCL problem behavior scores than did the individual perceptions about the family, especially in comparison with children's scores. Therefore, it can be concluded that a family mean score based on the aggregated individual scores is preferred above individual scores in studying relations between family functioning and child psychopathology.

However, we should realize that, contrary to our expectation, the reliability of the family

mean adaptability was lower than the individual mothers' and fathers' scores. This lower reliability is probably due to the low reliability of the children's adaptability score and to the relatively small association between the mother and child scores. Despite this lower reliability, the relation between the family mean adaptability and problem behavior appears to be stronger than for the individual scores. Our findings imply that it is important to carefully review individual scores by studying their reliabilities and their mutual relations, before computing family composite scores.

Furthermore, it is important to realize that the stronger relation for family mean scores in comparison with individual scores only holds for the association with CBCL scores. For TRF scores, only trends were found at the individual child and mother level and no significant effects were found at the level of the family as a whole. It can be argued that the observed relation between mean family functioning scores and CBCL scores was mainly attributable to common informant variance, given that both scores contain information of one or both parents. Although the family mean scores also contain information of the child, the child scores could not totally eliminate the possible effects of informant variance. To rule out the possibility of informant variance, we need data on child problem behavior at home, which are collected independently from those who rated family functioning.

The difference in the procedures obtaining CBCL and FDS scores could have led to confounding effects in the examination of their mutual relationship. Due to differences in clinical procedures in the three RMHAs, it was not possible for us to obtain a mother- as well as a father-completed CBCL for each family. Hence, we had CBCLs, which were filled in by both parents jointly, and CBCLs, which were completed by both parents separately. In order to get one CBCL score for each family, we decided to aggregate the mother and father scores into a mean. However, we do not know for certain to what extent these mean scores are equivalent to CBCL scores generated jointly by two parents. Tests of homogeneity of variances between these two types of scores revealed only few and nonsystematic differences. While the variance in Internalizing scores was larger for the group, who completed the CBCL jointly, the variance in Delinquent Behavior and Externalizing scores was larger for the group, who filled in the CBCL separately. So, if anything, the obtained association between family functioning and parent ratings of problem behavior may have been reduced somewhat for

Internalizing behavior, due to reduction of variance using joint and mean parent ratings together, and may have been somewhat inflated for Delinquent Behavior and Externalizing problems, due to the reverse effect.

However, post-hoc analyses in which the associations between the family dimensions and Internalizing and Externalizing scores were compared between the group who filled in the CBCL jointly and the group who filled it in separately, revealed for both groups stronger effects on Externalizing than on Internalizing. Besides, the effects of family adaptability on Internalizing and Externalizing were almost the same for both groups (explained variance in Internalizing is 6% for both groups, and explained variance in Externalizing is 11% and 10% for the group who filled in the CBCL jointly, and the group who completed the CBCL separately, respectively). Furthermore, the analyses of family cohesion revealed stronger effects on both Internalizing (explained variance = 5%) and on Externalizing (explained variance = 11%) for the group who completed the CBCL jointly versus the group who completed the CBCL separately (explained variance = 1% and 7% for Internalizing and Externalizing, respectively). So, we might conclude that the stronger relation we found between cohesion and adaptability and Externalizing is probably not due to differences in the homogeneity of variances.

The comparison of both aggregated family scores revealed that, contrary to the family mean score, the family discrepancy score did not explain a statistically significant proportion of the variance in any of the child problem behavior scores. One might seek an explanation for this result in differential contributions of individual family members' scores to both family scores. Differential contributions of parents' and children's individual scores might lead to different relations with problem behavior due to effects of informant variance. However, as shown in Table 2.1, all family members' scores contributed equally to both the family mean (below the diagonal) and family discrepancy score (above the diagonal).

A second type of explanation might be sought in the importance of discrepancy in perceptions for family adjustment. First, the dissimilarities in perceptions between children and their parents may only reflect a struggle for independence (Larsen and Olson, 1990; Tein et al., 1994), which may be regarded a healthy family process, especially for families with adolescents. Second, one might also suggest that parents and children are not aware of their

discrepancies in perceptions. Possibly, especially only if family members are aware of dissimilarity, conflicts concerning these discrepancies may arise in the family, which might lead to more problem behavior in the child. Finally, parents and children may be well aware of their differences in perceptions, but have learned to deal with these differences in such a way that possible negative effects are diminished (Deal, Wampler, & Halverson, 1992). Future research is clearly needed to investigate these possible explanations.

We should be aware that we are only one step further in creating family variables. By averaging individual reports about cohesion and adaptability into family mean scores, we lost the possibility to distinguish between variance, which is due to the individual perceptions of the family members and the variance which is due to the common perspective. In future research, we might use linear structural equation techniques in which we could model both types of perception (Cook, 1994; Cook & Goldstein, 1993; Deal, 1995). Possibly, we could directly, i.e., within one analysis, investigate the relative abilities of the different measures to predict child problem behavior. The successful identification of the two types of perspective will be helpful both to our understanding of the distinguishing contributions of the different family members to the family score and of the relation between individual versus family scores and child psychopathology.

In this investigation, we studied the relation of two well-known dimensions of family functioning with child psychopathology. Our results demonstrate that high cohesion and low adaptability were associated with less problem behavior. The negative relation that we found between cohesion and psychopathology supported the findings reported by others. It seems that in the FDS, just as in the FACES, undercohesive families are being measured, while overly cohesive families are not (Olson, 1994). High cohesion, as measured by FACES and FDS, seems to indicate high connectedness, rather than overly cohesiveness. The message that could be taken from this study is that the association is much clearer when cohesion is measured at a family level than at an individual level. This clearer association also concerns the dimension of adaptability. However, while researchers who used the FACES found that low adaptability was associated with more problem behavior we found the opposite. These conflicting results are certainly due to differences in item content in the FACES and the FDS. While overly adaptive families are not being properly assessed by FACES (Olson, 1994), it

seems that underadaptive families are not being assessed by the FDS. As suggested earlier, low adaptability as measured by the FDS indicates highly structured families, rather than underadaptive ones. Obviously, lack of structure is an important factor in the study of child problem behavior. Adaptability as meant by Olson is also of potential importance, however, we were not able to test this possibility.

Family members' perceptions are crucial for understanding and intervening in family systems (Deal et al., 1992). Our results suggest that for clinical purposes it is important to gather information about mothers' and fathers' experienced cohesion and adaptability and about children's perceptions of cohesion. Among families, who have sought help for their children's problems, low cohesion, as reported by all family members, was associated with higher levels of Externalizing behavior in the child. These observed associations provide support for interventions at the family level to increase cohesion. Our results with regard to adaptability suggest that in the treatment of children's Internalizing and Externalizing behavior, especially the amount of chaos (high adaptability) experienced by both mothers and fathers is important, as a focus of family interventions.

Although our hypotheses regarded the effects of family functioning on child psychopathology, it is equally likely that the problem behavior of the children had an impact on family functioning. Because of the cross-sectional design in the present study, we could not test the causal direction of the effect. To study this direction, a longitudinal approach is needed.

Cohesion and adaptability are descriptions of general family functioning. This means that the object of our study was the family as a whole. However, the family can also be conceptualized as consisting of different relationships. For example, in a study of Cole and Jordan (1989), it was found that the different subsystems (father-mother, mother-adolescent, father-adolescent) within a family varied considerably from one dyad to another on cohesion and adaptability. As a consequence, important information about subsystems may be overlooked when family members report on the entire family. This does not mean that a global assessment of family functioning may not be worthwhile. Our study demonstrates that the general characteristics of family functioning, cohesion and adaptability, are associated with child psychopathology. However, cohesion and adaptability explain only a small

proportion of variance (between 4% and 9%) in child problem behavior. Thus, in future research it seems to be valuable to study the family members' perceptions of the family as a whole, but also their perceptions of relationships with each of the other individual family members.

In sum, our findings indicated that for cohesion it could be worthwhile to combine different individual perceptions into a composite family mean score. In the future, we should further investigate the computation of family variables and examine the distinguishing contributions of the different family members to these composite scores. Beside questionnaires aimed at the family as a whole we should also use questionnaires regarding the different relationships within the family. Finally, to further examine the direction of the association between family functioning and problem behavior, this relationship should be studied longitudinally.

CHAPTER 3

The Relationship between Mutual Family Relations
and Child Psychopathology

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Abstract

The associations of the mutual mother-child, father-child, and mother-father relationship and various patterns of family relations with child psychopathology were investigated in a sample of 137 families referred to outpatient mental health services. Assessment of the relative association of the different family dyads showed that both the mother-child and the mother-father relationship were related to child problem behavior. However, while the mother-child relationship was consistently more related to externalizing behavior, the mother-father relationship was particularly related to internalizing behavior. Our findings gave clear support for the cumulative risk model; having more negatively qualified relationships was associated with more problem behavior. Furthermore, our results suggested a protective influence of the parent-child relationship: having one or two positive parent-child relationships was associated with less problem behavior. No support was found for the cross-generational coalition hypothesis. Implications for future research are discussed.

Introduction

Research on the association between family relations and child psychopathology has demonstrated the usefulness of examining parent-child and marital dyads (e.g., Davies & Cummings, 1994; Emery, 1982; Grych & Fincham, 1990; Loeber & Stouthamer-Loeber,

1986; Rothbaum & Weisz, 1994). Most studies have focused on either the parent-child or the marital relationship. However, theorists and investigators have increasingly recognized that the different dyads within the family are mutually interdependent (Margolin, 1981; Minuchin, 1985; Vuchinich, Emery, & Cassidy, 1988; Westerman, 1987). As a consequence, the influence of family relations on the child's behavior cannot be fully understood by studying one isolated dyadic relationship. Furthermore, although it has been shown that both mothers and fathers play a significant role in the development of child psychopathology, fathers continue to be underrepresented in research (Phares & Compas, 1992). Therefore, in the present study, we examined the mother-child, the father-child, as well as the marital relation regarding their association with child psychopathology.

Despite evidence that also the relations within the dyads themselves are mutually interdependent (Bell, 1968; Cook, 1994; Cook, Kenny & Goldstein, 1991; Lytton, 1990; Patterson, 1982), only few researchers have taken this reciprocity into account. An important limitation of most studies is that they have focused exclusively on the perception of one family member about his or her relationship with the other. However, to get a more reliable measure of the mutual relationship between two persons, it seems to be relevant to study both perceptions. Therefore, we assessed the judgements of both members of the dyad, and combined these scores in a relational score.

Furthermore, in order to do justice to the mutuality in dyadic relationships, we used concepts, which are derived from the intergenerational family theory of Boszormenyi-Nagy (Boszormenyi-Nagy & Sparke, 1973; Boszormenyi-Nagy & Ulrich, 1981). According to this theory, problems arise when the balance of give and take between parents and children or between fathers and mothers is disturbed. In a good relationship family members will experience the balance of giving and receiving as fair and just. Such a relationship will be characterized by mutual justice, recognition and trust. Besides, we also used a concept which is based on Patterson's coercion theory (Patterson, 1982). This theory proposes that parents and children, who have learned to control each other's behavior by exchanging high rates of aversive responses, could become enmeshed in a spiral of mutually coercive interactions. Moreover, support for Patterson's reciprocity hypothesis came from studies carried out by Cook et al. (Cook, 1994; Cook et al., 1991). They found that children who perceived the

relationship with their parents as more negative have parents, who perceived the relationship with their children also as more negative. In addition, they also found that negativity in the marital relationship was reciprocally determined. In the present study we examined negativity in family relations, by assessing the extent to which each family member felt constrained by the other.

Examining concurrently the three family relationships provides the opportunity of determining their relative influence on problem behavior. Especially, for clinical purposes it is important to know which dyad is likely to have the largest associations with which type of child problem behavior, i.e., either with internalizing or externalizing behavior. The theoretical models of Patterson (1982) and Belsky (1984) suggest that the influence of the parent-child relationship on child problem behavior would be stronger than the marital relationship. Both theorists assume that the marital relationship is linked mainly indirectly with child problem behavior through their influence on the parent-child relation. Empirical evidence for this hypothesis was found in the study by Fauber, Forehand, McCombs Thomas and Wierson (1990). Although marital conflicts both directly and indirectly influenced externalizing behavior, the influence on internalizing behavior was only indirect through the parent-child relation. Moreover, Forehand, Long, Brody, and Fauber (1986) and Jouriles, Barling, and O'Leary (1987) found only significant associations between the parent-child relation and parent-rated as well as teacher-rated problem behavior, but no associations for the marital relation. Therefore, we expected to find larger associations between the parent-child relationship and child problem behavior than between the marital relationship and child problem behavior.

Until now, little conclusive evidence has been found for the distinguishing effects of the father-child and mother-child relation on child psychopathology. The studies, in which both relations were compared, have produced conflicting results. Stronger effects for the father-child dyad (Loeber & Stouthamer-Loeber, 1986; Tousignant, Bastien, & Hamel, 1993) as well as stronger effects for the mother-child dyad (Rothbaum & Weisz, 1994; Forehand et al., 1986; Hollis, 1996) have been reported. Rothbaum and Weisz (1994) hypothesized that mothers would have a stronger influence, because as primary caregivers they are more involved with their children than fathers are. In the other studies, no explanations were given

for the stronger influence of either fathers or mothers. Our first aim was to assess the relative associations of the three dyads, i.e., the mother-child, the father-child and the mother-father relationship, with child psychopathology using a relatively large sample.

Our second aim was to examine the associations of various patterns of family relations with child psychopathology. Based on combinations of marital and parent-child relationships family patterns could be defined, which differ from each other by the number of negative and positive relationships. Several studies have shown the cumulative effect of multiple risk factors, indicating that the accumulation of risk factors increases the likelihood of developing problem behavior (e.g., Rutter, 1979, Sameroff & Seifer, 1983). Since the lack of a positive family relationship is assumed to be a risk factor, we hypothesized, based on the cumulative risk model, that children from families with no positive relationships would have more problem behavior than children from families with either one, two, or three positive relationships.

Furthermore, based on the resilience literature (e.g., Rutter, 1992) we could also examine the possible protective influence of the parent-child relationship on child problem behavior. More specifically, it is suggested that a warm, supportive relationship with one or both parents may provide security for the child and can migitate, but not eliminate, the effects of parental discord (Emery, 1982; Rutter, 1971). From this viewpoint the effects of a poor marital relationship are assumed to be worst when the conflict alienates the child from both parents. Findings from a study by Peterson and Zill (1986) on the effects of marital conflicts on child problem behavior suggest that the moderating effects of good parent-child relationships apply to both internalizing and externalizing behavior. Therefore, we selected those children from families in which the marital relationship was qualified as negative, and examined whether children, who had a good relation with one or both parents, exhibited less internalizing and externalizing behavior than those without any good relationship.

A specific family pattern, which has received much attention in the literature is the cross-generational coalition (Minuchin, 1974). This pattern, which is derived from the structural family system theory, refers to a process by which one of the parents attempts to form an alliance with the child against the other parent and is assumed to play an important role in the etiology and maintenance of both externalizing and internalizing behavior. An important

feature of a cross-generational coalition is that one parent-child relationship is characterized by high emotional support in comparison with the marital relationship and with the other parent-child relationship. Thus, contrary to the protective factor model in which a positive relation with one of the parents is assumed to moderate the negative effects of marital discord, is this family pattern in the structural family system theory seen as detrimental for the child.

Findings from studies of cross-generational coalitions suggest that although there are differences in patterns of family relations between families of referred and non-referred children, the former are not by definition characterized by cross-generational coalitions (Gilbert, Christensen, & Margolin, 1984; Madanes, Dukes, & Harbin, 1980; Mann, Borduin, Henggeler, & Blaske, 1990). An important limitation of research in this field is that the question whether children who are involved in a cross-generational coalition had more problem behavior than children from families without such cross-generational coalitions is not addressed. The present study provides the opportunity to examine this question. When children with only one positive parent-child relationship had less problem behavior than children with no positive relationships, this would be a confirmation for the risk and protective factor model. However, when these children scored higher on problem behavior, this would be a support for the cross-generational hypothesis. Furthermore, we tested whether the children involved in a cross-generational coalition had more problem behavior than children from families with also only one positive relationship, namely the marital relationship.

In sum, this study had two purposes. First, we examined which dyad (mother-child, father-child, mother-father) has the largest association with child psychopathology. We expected that the parent-child relation would be more strongly associated with child psychopathology than the mother-father relation. Given the conflicting results regarding the influence of father-child versus the mother-child relation, we could not predict which dyad would yield the strongest associations. Second, we compared different family patterns, based on the assessment of dyadic relations, regarding their association with child problem behavior. In accordance with the cumulative risk model we expected that children from families without any positive relation would have more problem behavior than children from families in which either one, two or three relationships can be qualified as positive. Furthermore, we hypothesized that

children from families with a poor marital relationship would exhibit more problem behavior when, in addition, they have no positive relation with either parent. Consistent with the cross-generational hypothesis we predicted that children, who are in alliance with one of their parents would exhibit more internalizing and externalizing behavior than children with no positive relationships or than children from families with only a positively qualified marital relationship. The different hypotheses we tested were not independent of each other, but they yielded more specifically information about the relation of family patterns with child problem behavior.

Method

Subjects

The sample was selected from families, referred to one of three Regional Mental Health Agencies (RMHAs) in the greater Rotterdam area, Capelle aan den IJssel, or Delft. To be included in the sample, families and children had to meet the following criteria: children were between 9 and 16 years old; the children were not diagnosed as mentally handicapped or autistic; parents and children had enough command of the Dutch language to complete questionnaires; they were not referred to another institute immediately after intake; the children were the immediate reason for the referral; both parents were informed about the referral; the child had lived at least during half a year in the current family.

Between March 1993 and December 1994, 471 families with children between 9 and 16 years old were referred to one of the three RMHAs, 401 families of them met the criteria for inclusion in our study.

At intake, the purpose of the study was explained to parents by a mental health worker of the RMHA. At the same time parents were asked for participation. However, 57 families were not asked for participation by the mental health worker. For 47.7% of these cases, the mental health worker omitted to introduce the study, and it was not possible to ask for participation later on, because the family had just a single consultation. For 14 families (24.5%) the mental health worker could give a reason for not introducing the study. Motives mentioned were: resistance against testing, crisis situation, or the study was considered too much of a burden to the family or child.

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Of the 344 remaining families 223 (64.8%) participated in our study. Of the families who did not participate 24.0% did not give a clear reason for their refusal. The most important reasons for refusals mentioned by parents were: the study would be too much of a burden to the family or child (48.8%), the family was not motivated (8.3%), they felt resistance against testing (5.0%), the study endangered their privacy (5.0%), the child refused to participate (4.1%). The remaining 4.8% mentioned one of the following reasons: family problems (2.4%), they had negative experience with social work (1.6%), mother deceased recently (0.8%).

Of the 223 families, who participated in our study 168 families consisted of two parents. A subsample of 137 (81.5%), for whom complete data on the Nijmegen Family Relations Test (Oud & Welzen, 1989) was available, was selected for the present study. No significant differences were found between the families with complete data and the two-parent families who were excluded because of incomplete information with respect to problem behavior, sex and age of the child, and parental occupational and educational level.

The remaining families consisted of 89 boys and 48 girls (mean age = 11.3 years, SD = 2.3). Mothers were on average 38.5 years old (SD = 5.0) and fathers were on average 41.0 years old (SD = 5.5). The mean occupational level of mothers on a 6-point scale (6 = highest; Van Westerlaak, Kropman, & Collaris, 1975) was 2.94 (SD = 1.12), and of fathers 3.47 (SD = 1.59). Mean parental educational level according to a 7-point scale (7 = highest; Standard Educational Classification, CBS, 1987) was 2.99 (SD = 1.54 for mothers, and 3.31 (SD = 1.83) for fathers. Of the parents 89.0% were married, 9.5% were cohabiting, and 1.5% had a partner, but were not living together. In 81.8% of the cases the child was living with both biological parents, 11.7% with the biological mother and partner, 1.5% with the biological father and partner, 2.9% with adoption parents, 1.5% with the biological mother alone, and 0.7% with foster parents. Main reasons for referral, based on information from the parents, were emotional problems (48.2%), behavior problems at home (42.3%), problems in child-peer relationships (29.2%), behavior problems at school (20.4%), school- and learning problems (19.0%), problems in the parent-child relationship (16.8%), sleep- and/or eating problems (15.3%), and problems in child-sibling relationships (13.9%). For 106 (77.4%) children two or three problems were mentioned.

Procedure

If parents agreed to participate they were contacted by telephone to make further appointments. The assessment session was scheduled at one of the three RMHAs. At the outset of the session, the interviewer explained the procedure and obtained written consent from the parents. The parents were interviewed about demographic characteristics, the reasons for referral, and earlier treatment for mental health problems of the child or other family members. Next parents and children completed the Nijmegen Family Relations Test (NFRT; Oud & Welzen, 1989), and parents completed the Dutch version of the Child Behavior CheckList (CBCL; Achenbach, 1991a). The items of the NFRT were read aloud to the children by a research assistant. After obtaining the parents' consent to gather information from the child's behavior at school, the Teacher's Report Form (TRF; Achenbach, 1991b) was sent to the teacher.

Measures

Family Relations. The *Nijmegen Family Relations Test* (NFRT; Oud & Welzen, 1989) comprises of 67 5-point items, and is designed to measure the child's perception of his/her relation with other family members. The child indicates on a score form the extent to which each item, which is read aloud to him or her, is true for its family members. On base of the child's version of the NFRT a parent's version was constructed. Only 5 items had wordings that were slightly different from the original child's version. The NFRT operationalizes six relational dimensions. These dimensions were derived by means of confirmatory factor analyses, executed on base of the answers of 440 8- to 13-years-old primary school children, on 70 items. For this study we used only four dimensions. The dimension restrictiveness was used to measure negativity in family relations. The dimensions justice, recognition, and trust were used to measure concepts, which are derived from the intergenerational family theory of Boszormenyi-Nagy (Boszormenyi-Nagy & Sparke, 1973; Boszormenyi-Nagy & Ulrich, 1981). *Restrictiveness* (12 items) is the degree to which the respondent experienced that the other family member places demands on him/her (e.g., 'This person expects too much from me'). *Justice* (12 items) refers to the way the balance of giving and taking in the relationship with the other is experienced (e.g., 'Whatever I do, this person is never satisfied by me').

Recognition (13 items) expresses the extent the respondent experiences that his or her presence and behavior is appreciated by the other (e.g., 'This person is proud of me'). *Trust* (13 items) is the extent to which the respondent can count on another family member and the extent to which perceptions of the respondent and the other correspond with each other (e.g., 'This person will really help me when I need him/her'). The NFRT has been demonstrated to discriminate between families of referred and non-referred children aged 9 to 12 years (Oud & Welzen, 1989).

Before computing dyadic scores paired *t*-tests were used to examine differences in scores between mothers and children, fathers and children, and mothers and fathers with respect to their mutual relationship. These analyses revealed significant differences for all four dimensions between parents and children, and for three dimensions between mothers and fathers. Because of the differences in mean scores, the raw scores of restrictiveness, justice, recognition, and trust for each informant were transformed to *z*-scores, before dyadic scores were computed. The dyadic scores were derived by summing, for each of the four dimensions, the *z*-scores for the two family members of each dyad, and dividing the sum by two, yielding twelve dyadic scores (3 dyads x 4 dimensions).

Cronbach Alpha's were calculated for the dyadic scores. The internal consistencies ranged from .79 to .90 for the mother-child relationship (mean = .84), from .79 to .86 for the father-child relationship (mean = .82), and from .82 to .92 for the mother-father relationship (mean = .87), indicating that the dyadic scales were sufficiently reliable.

Problem Behavior. *The Child Behavior CheckList 4-18* (CBCL; Achenbach, 1991a) and the *Teacher's Report Form* (TRF; Achenbach, 1991b) were used to obtain standardized parent and teacher reports on children's behavioral/emotional problems. The CBCL and the TRF both contain 120 problem items to which the respondent can answer '0' if the problem item is not true of the child, '1' if the item is somewhat or sometimes true, and '2' if it is very true or often true. Of the problem items 95 are the same in both instruments. By summing 1s and 2s eight syndromes (*Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior,* and *Aggressive Behavior*), two broad-band groups of syndromes *Internalizing* and *Externalizing*, and a *Total Problem* score can be computed. The Internalizing group consists of the Anxious/Depressed, Somatic

Complaints and Withdrawn syndromes. The Externalizing group consists of the Aggressive and Delinquent Behavior syndromes. The discriminative validity for both the CBCL and the TRF was demonstrated in several studies (Verhulst & Akkerhuis, 1986; Verhulst, Akkerhuis, & Althaus, 1985; Verhulst, Berden, & Sanders-Woudstra, 1985).

In 6 cases, the CBCL was completed by the mother alone, in 1 case by the father alone, and in 57 cases by both parents together. For 73 families both parents filled in a CBCL separately. The scores for these parents were summed and divided by two. Levene's tests tor homogeneity of variances were performed to test differences of variances between the group of parents, who filled in the CBCL jointly, and the group of parents, who filled it in separately. These tests revealed differences for Somatic Complaints, Delinquent Behavior, Internalizing, and Externalizing scores. The variance in Somatic Complaints and Internalizing scores was larger for the group, who filled in the CBCL together ($F = 3.94, p \leq .05$, difference $= 3.47$, and $F = 4.96, p \leq .05$, difference $= 29.58$, for Somatic Complaints and Internalizing, respectively), whereas the variance in Delinquent Behavior and Externalizing scores was larger for the group, who filled in the CBCL separately ($F = 10.07, p \leq .01$, difference $= 7.36$, and $F = 5.02, p \leq .05$, difference $= 43.55$, for Delinquent Behavior and Externalizing, respectively). The TRF was completed by 115 teachers.

Results

Descriptive Data

Comparing the Oud and Welzen (1989) normative distributions of cases across the levels of restrictiveness, justice, recognition, and trust to the distributions in this study for children aged 9 to 12 years, indicated lower mean scores for children in our sample. Significant differences were found for boys for the relation with mothers and fathers, respectively, on restrictiveness ($t = -3.73, p \leq .01$, and $t = -3.37, p \leq .01$), on justice ($t = -3.70, p \leq .01$, and $t = -3.44, p \leq .01$), on recognition ($t = -2.70, p \leq .01$, and $t = -3.55, p \leq .01$), and on trust ($t = -4.37, p \leq .01$, and $t = -5.04; p \leq .01$). For girls, significant differences in mean scores were found only on trust for the relation with mothers ($t = -2.05; p \leq .05$). Boys in this sample seemed to experience less restrictiveness, less justice, less recognition, and less trust in the relations with their parents than their counterparts in the normative sample. Girls seemed to

experience less trust in the relation with their mothers than girls in the normative sample.

To obtain information on the possible typicality of this referred sample, CBCL and TRF total problem scores were compared to those obtained for a large sample of consecutive referrals of children of comparable age and sex (N = 2004, N = 1692 for CBCL and TRF scores, respectively) referred to all RMHAs in the Rotterdam region during an 18 months period (Verhulst, Van der Ende, & Koot, 1996). This comparison revealed only one significant difference, indicating that girls older than 11 years had somewhat lower mean CBCL Total Problem scores (t = -2.49, $p \le$ .05) than girls of the same age in the comparison sample. The comparison with TRF total problems revealed no significant differences. This means that levels of parent and teacher reported problem behaviors found in our sample are highly comparable to that of a representative sample of referred children.

Relation of Dyadic Relationship Scores with Child Problem Behavior

Comparisons of NFRT dyadic scores for boys and girls using t-tests revealed no significant differences. Therefore, analyses were performed on the combined sample of girls and boys. Because both sex and age could influence the association between family relations and child problem behavior we statistically controlled for these effects by including them as covariates in the analyses.

To assess the unique contribution of each of the three interrelated family dyadic relations to child problem behavior, multiple multivariate regression analyses were used with the set of scores from the three dyads, i.e., the mother-child, the father-child, and the father-mother relationship, on restrictiveness, justice, recognition and trust as independent continuous variables, and problem behavior scores as dependent variables. These analyses were executed for the CBCL data on two sets of dependent measures, the first set including the Internalizing and Externalizing scores, and the second set including the eight syndrome scores. These analyses were repeated for restrictiveness, justice, recognition and trust. The same multivariate regression analyses were performed on the TRF data. In total, 16 analyses were executed (4 dimensions x 2 sets of CBCL scores + 4 dimensions x 2 sets of TRF scores).

Table 3.1 shows the relative effects of the mother-child, the father-child, and the father-mother relation on CBCL Internalizing and Externalizing. Most significant multivariate

Table 3.1

Effects of Restrictiveness, Justice, Recognition, and Trust on CBCL-Internalizing, and CBCL-Externalizing ($N = 137$)

	Pillais' Multivariate Test (Effect Sizes)	Univariate Effect Sizes	
		Internalizing	Externalizing
Restrictiveness			
Mothers-Children	6.35** (.09)	-	.09
Fathers-Children	3.54* (.05)	-	.05
Fathers-Mothers	2.52 (.04)	-	-
Justice			
Mothers-Children	12.50** (.16)	-	.16
Fathers-Children	1.34 (.02)	-	-
Fathers-Mothers	4.14* (.06)	.05	-
Recognition			
Mothers-Children	4.58** (.07)	-	.03
Fathers-Children	2.77 (.04)	-	-
Fathers-Mothers	5.02** (.07)	.04	-
Trust			
Mothers-Children	3.91* (.06)	-	.05
Fathers-Children	1.08 (.02)	-	-
Fathers-Mothers	5.24** (.08)	.08	-

Note. Entries indicate proportions of variance in CBCL Internalizing and Externalizing explained by family relations. * $p \le .05$. ** $p \le .01$.

effects emerged for the mother-child relation and the father-mother relation. Univariate analyses revealed differential influences for both dyads on CBCL problem behavior. The mother-child relationship was significantly related to Externalizing after controlling for the effects of the other family relations, whereas the father-mother relationship was significantly related to Internalizing. Higher restrictiveness, less justice, less recognition, and less trust in the mother-child relation were associated with higher Externalizing scores. Less justice,

recognition and trust in the father-mother relationship were related to higher Internalizing scores. In order to get a more detailed description of the association between family dyads and more specified child problem behavior we also performed analyses on the eight syndrome scores. Inspection of the effects on CBCL syndromes (see Table 3.2) demonstrates that the mother-child relationship was only related to Attention Problems, Delinquent Behavior, and Aggressive Behavior. The father-mother relationship was particularly related to Somatic Complaints.

Only one significant multivariate effect for the father-mother relationship on the set of TRF Internalizing and Externalizing scores emerged ($F = 4.35$, $p \le .05$). Less recognition was significantly associated with higher teacher scores for the Externalizing scale (explained variance = 5%). At the syndrome level only one multivariate effect was found for restrictiveness in the father-child relation ($F = 2.13$, $p \le .05$). Higher restrictiveness was associated with more Attention Problems as reported by the teacher (explained variance = 7%).

Family Patterns and Problem Behavior

Cumulative Risk Model. Mean splits were used to form high and low dyadic scores on restrictiveness, justice, recognition, and trust. Next, these dichotomized scores were used to create four different family patterns. In the first pattern all dyads scored below the median. The second pattern was characterized by two low scoring dyads. Families, who had only one low scoring dyad were clustered in the third pattern. And in the fourth pattern all dyads scored above the median. The formation of family patterns based on restrictiveness was the reversal of those for the other dimensions.

We performed MANCOVAs on the set of CBCL and TRF Internalizing and Externalizing scores with family pattern as independent variable, and age and sex as covariates. In total, 8 analyses were executed (4 dimensions x CBCL scores + 4 dimensions x TRF scores). If a significant effect was found, Bonferroni's Multiple Range Test was used to determine the nature of the between groups differences ($p \le .05$).

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Table 3.2

Effects of Restrictiveness, Justice, Recognition, and Trust on CBCL syndromes (*N* = 137)

	Pillais' Multivariate Test (Effect Sizes)		Univariate Effect Sizes							
			wth	som	axd	soc	tht	add	del	agg
Restrictiveness										
Mothers-Children	2.23*	(.13)	-	-	-	-	-	-	.04	.09
Fathers-Children	1.33	(.08)	-	-	-	-	-	-	-	-
Fathers-Mothers	1.29	(.08)	-	-	-	-	-	-	-	-
Justice										
Mothers-Children	4.17**	(.21)	-	-	-	-	-	.11	.09	.15
Fathers-Children	0.77	(.05)	-	-	-	-	-	-	-	-
Fathers-Mothers	1.38	(.08)	-	-	-	-	-	-	-	-
Recognition										
Mothers-Children	2.47*	(.14)	-	.05	-	-	-	.04	.03	-
Fathers-Children	1.58	(.09)	-	-	-	-	-	-	-	-
Fathers-Mothers	2.27*	(.13)	-	.06	-	-	.04	-	-	-
Trust										
Mothers-Children	2.55**	(.14)	-	.05	-	-	-	.04	.06	.03
Fathers-Children	0.56	(.04)	-	-	-	-	-	-	-	-
Fathers-Mothers	2.26*	(.13)	.04	.10	.03	-	.04	-	-	-

Note. Entries indicate proportions of variance in CBCL problem scores explained by family relations. wth=withdrawn, som=somatic complaints, axd=anxious/depressed, soc=social problems, tht=thought problems, add=attention problems, del=delinquent behavior, agg=aggressive behavior.

* $p \le .05.$ ** $p \le .01.$

Table 3.3 presents the means and standard deviations of CBCL Internalizing and Externalizing scales for the four distinguished family patterns. Multivariate effects emerged for restrictiveness and justice. Univariate effects were found for both dimensions on the Externalizing, and only for justice on the Internalizing scales. Children from families with three highly restrictive dyads or with three dyads characterized by low justice had higher Externalizing scores than children from families with either none, or one dyad qualified as

negative. Furthermore, children from families with two mutually restrictive dyads or with two dyads characterized by low mutual justice scored higher on Externalizing problem behavior than children from families with no dyads characterized by high restrictiveness or low justice. Children, living in a family with either three or two negative relationships, characterized by low mutual justice, scored higher on Internalizing problem behavior than children from families with only one negative relationship.

For TRF Internalizing and Externalizing scores no significant multivariate effects were found.

Protective Influence of the Parent-Child Relationship. Next, we addressed the question whether, in families with a negatively qualified marital relationship, there was an association between the number of positively qualified parent-child relationships and both Internalizing and Externalizing scores. MANCOVAs were completed with the number of positive parent-child relations (0, 1, 2) as independent variable, CBCL and TRF Internalizing and Externalizing scores as dependent variables, and age and sex as covariates. As with the cumulative risk model, multivariate effects emerged for restrictiveness and justice. Univariate effects were found for both dimensions on CBCL Externalizing (F (2, 64) = 5.85 and F (2, 63) = 8.83, for restrictiveness and justice, respectively, both $ps \le .01$) and only for justice on CBCL Internalizing (F (2, 63) = 4.94, $p \le .01$).

Planned comparisons showed that having either one positively qualified parent-child relationship (t = -2.44, $p \le .05$; t = -3.12, $p \le .01$, for restrictiveness and justice, respectively) or two positively qualified parent-child relationships (t = -3.09; t = -3.71, for restrictiveness and justice, respectively, both $ps \le .01$) was associated with less Externalizing scores. Having only one positive parent-child relationship was not significantly different from having two positive parent-child relationships in terms of CBCL Externalizing. Children with either no or only one positively qualified parent-child relationship, based on justice, scored higher on CBCL Internalizing than children with two positively qualified parent-child relationships (t = 2.73, and t = 2.99, for no and one positive parent-child relationship, respectively, both $ps \le$ .01). In order to control for chance findings, we applied a Bonferonni correction for the number of comparisons. After this correction the difference between no highly restrictive

Table 3.3
Effects of Family Patterns on CBCL-Internalizing and CBCL-Externalizing

	Family Pattern *Restrictiveness*				Analyses		
	1 $(n = 31)$	2 $(n = 41)$	3 $(n = 32)$	4 $(n = 33)$	Multivariate F (Effect Size)	Univariate F (Effect Size)	Significant contrasts
Problem Behavior					5.41** (.11)		
						1.91 (.04)	
Intc							-
M	16.79	16.42	14.64	12.56			
SD	7.71	8.85	7.85	7.46		11.76** (.21)	
Extc							1 > 3,4;
M	23.36	18.92	15.14	12.17			2 > 4
SD	9.74	10.37	7.46	6.67			

	Family Pattern *Justice*						
	1 $(n = 33)$	2 $(n = 38)$	3 $(n = 29)$	4 $(n = 37)$			
					6.79** (.14)		
Intc						4.39** (.09)	
M	17.82	17.13	11.79	13.39			1 > 3;
SD	8.78	8.00	6.78	7.52			2 > 3
Extc						12.71** (.26)	
M	23.71	18.88	15.55	11.74			1 > 3,4;
SD	9.91	9.94	7.62	6.34			2 > 4

	Family Pattern *Recognition*						
	1 $(n = 29)$	2 $(n = 45)$	3 $(n = 30)$	4 $(n = 33)$			
					0.79 (.07)		
Intc						0.63 (.01)	
M	16.85	14.42	15.45	14.41			-
SD	8.51	7.61	9.57	7.12			
Extc						0.87 (.02)	
M	18.02	18.70	15.60	16.77			-
SD	10.25	10.55	9.04	8.18			

	Family Pattern *Trust*						
	1 $(n = 30)$	2 $(n = 41)$	3 $(n = 34)$	4 $(n = 32)$			
					1.18 (.04)		
Intc						0.81 (.02)	
M	16.83	14.37	15.77	13.96			-
SD	8.71	7.67	8.32	7.99			
Extc						1.98 (.04)	
M	20.58	17.23	16.91	15.20			-
SD	10.99	9.93	8.70	8.30			

Note. The Family Patterns 1, 2, 3, and 4 are characterized by respectively three, two, one, and none negative relationships. Intc = Internalizing, Extc = Externalizing. Entries indicate proportions of variance in CBCL Internalizing and Externalizing explained by family patterns. ** $p \leq .01$.

parent-child dyads and one highly restrictive parent-child dyad on CBCL Externalizing was not significant anymore.

For teacher-reported problem behavior, only for justice a multivariate significant effect was found ($F = 3.08, p \leq .05$). However, the univariate effects were not significant.

Coalitions. The results of the analyses, described in the previous section, revealed that children with a positive relation with only one of their parents did not score higher on either Externalizing or Internalizing scales than children from families with no positive relationship. In this section, we compared children, who were involved in a cross-generational coalition with one of their parents, with children from families with two negative parent-child relationships but with a positive marital relationship. MANCOVAs were performed with family pattern (either a coalition between one parent and a child or a family pattern characterized by a positive marital relationship and two negative parent-child relationships) as independent variable, CBCL and TRF Internalizing and Externalizing scores as dependent variables, and age and sex as covariates. Thus, in total, we performed 8 analyses (4 dimensions x CBCL scores + 4 dimensions x TRF scores). Multivariate effects emerged only for the dimension justice ($F = 5.33, p \leq .01$, and $F = 4.99, p \leq .05$, for CBCL and TRF scores, respectively). Univariate effects were only found on Externalizing behavior ($F (1, 34) = 5.03$, $p \leq .05$, and $F (1,29) = 6.67, p \leq .05$, for CBCL and TRF Externalizing, respectively). Contrary to our hypothesis, children in a cross-generational coalition obtained lower scores on both parent and teacher rated Externalizing behavior.

Discussion

Assessment of the relative association of each of the three family dyads, i.e., the mother-child, the father-child, and the mother-father relationship, indicates that particularly the mother-child relation and the mother-father relation were associated with child psychopathology as rated by the parents. Our hypothesis of a stronger association for the parent-child relation than for the interparent relation was only confirmed for the dimensions restrictiveness and justice. Recognition and trust in the mother-child and the mother-father relationship were equally related to child psychopathology. However, both dyads have a

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differential relation with the distinguishing aspects of problem behavior. Whereas the mother-child relation was consistently more important as a predictor of parent-rated Externalizing behavior, the mother-father relationship was only predictive of parent-rated Internalizing behavior. High mutual restrictiveness, and low justice, recognition and trust in the mother-child relation were related to more Externalizing behavior. A poor relationship between parents, characterized by low mutual justice, recognition, and trust was associated with more Internalizing behavior, especially with Somatic Complaints.

The explanation of the differential association of the mother-child and the mother-father relation with child psychopathology is unclear and is contradictory to what was found in the study by Jouriles et al. (1987). These investigators found associations between the parent-child relationship and both Internalizing and Externalizing behavior, but no significant relations for the marital relationship. Moreover, reviews of the literature have shown that although the marital relationship is consistently associated with a wide range of problem behavior in children, the strongest effects have been found for Externalizing disorders (Davies & Cummings, 1994; Emery, 1982; Grych & Fincham, 1990; Reid & Crisafulli, 1989). However, most notably, overt marital conflict seemed to be a better predictor of psychopathology than a global measure of marital dissatisfaction, apathy or 'encapsulated' conflict (Davies & Cummings, 1994; Grych & Fincham, 1990). In the present study we operationalized the marital relationship in terms of mutually experienced restrictiveness, justice, recognition and trust. Thus, possibly the conflicting results we have found are due to differences in the operationalization of the mutual relationship between the parents. As far as we know, this was the first attempt to empirically test hypotheses from intergenerational family theory. Therefore, it is not possible to compare our results directly with other studies. More research is clearly needed to replicate our findings.

Furthermore, our results suggest that the mother-child relationship has a larger association with child psychopathology than the father-child relation. Only mutual restrictiveness in the father-child relationship also provided a significant contribution to the prediction of Externalizing behavior, above and beyond the effects of both the mother-child and the mother-father relationship. This suggests that especially negative aspects of the father-child relationship are important for the prediction of Externalizing behavior. However, it should be

noted that this result does not mean that the other aspects of the father-child relationship are inevitably not important, but rather that they were not related to child problem behavior, after partialling out the effects of both the mother-child and the mother-father relationship. Furthermore, the stronger association we have found for the mother-child relation does not say anything about its influence on the course of problem behavior. Longitudinal studies are required in order to examine whether the mother-child relation is also more predictive not only for the presence, but also for the change in child problem behavior over time.

The theoretical models of Boszormeny-Nagy (Boszormeny-Nagy & Sparke, 1973) and Patterson (Patterson, 1982) have stressed the importance of reciprocal effects in the relationship between parents and children. These effects involve, for example, that problem behavior of the child, would lead to a negatively qualified parent-child relationship, which in turn leads to more problem behavior. As a result both the problem behavior of the child and the negatively qualified parent-child relationship will mutually maintain each other. Possibly, our consistent finding of a relationship between the mother-child dyad and Externalizing behavior indicates a reciprocal effect between mother and child. Especially, experienced justice was strongly related to Externalizing scores. This could be of great importance, since bidirectionality is included in the operationalization of the concept of justice. Therefore, in future studies regarding child psychopathology, this concept deserves special attention.

The second purpose of our study was to examine the associations of various patterns of family relations with child psychopathology. The hypothesis based on the cumulative risk model that children from families with no positive relations had more problem behavior than children from families with either one, two or three positive relationships was strongly confirmed for the concepts restrictiveness and justice, but not for the concepts recognition and trust. Our results suggest that the most detrimental situation for children is living in a family with three or two negatively qualified relationships. However, it should be realized that this holds especially for parent-rated Externalizing behavior, to a lesser degree for parent-rated Internalizing behavior, and not for problem behavior as reported by the teacher. The stronger effect on Externalizing behavior was consistent with the findings of Fendrich, Warner and Weissman (1990), who concluded that family risk factors were more associated with conduct disorders than with other disorders.

The protective influence of the parent-child relation was clearly demonstrated for the concepts restrictiveness and justice on parent-rated Externalizing problem behavior and for justice on parent-rated Internalizing behavior. Children, whose fathers and mothers perceive their mutual relationship as negative, showed more Externalizing behavior when they lack, in addition, a positive relation with either parent. Moreover, to protect children from having a high level of Internalizing behavior they need to possess a positive relationship with both parents, characterized by high mutual justice. Although no investigations have been carried out to test the possible mechanisms by which the protective effect of the parent-child relationship could be explained, Rutter (1992) has mentioned three potential explanations. First, maybe the positive parent-child relationship yields a decrease of the general level of family discord. Second, the parent with whom the child has a good relationship possibly takes care for the fact that the child will not be involved in the mutual problems of the parents. And third, a good parent-child relationship can increase the child's self-esteem, which could function as a protective factor.

Our hypothesis that children, who were in alliance with one of their parents would exhibit both more Internalizing and Externalizing behavior than children from families without such a cross-generational coalition was not supported by the results. First, as we mentioned before, these children scored lower on Externalizing behavior than children from families with three negative relationships. Second, the differences we found between children allied to one of their parents and children from families with two negative parent-child relationships and a positive marital relationship indicate that the children involved in a cross-generational coalition scored lower on Externalizing problem behavior. Although the children in a cross-generational coalition did not have more problem behavior than children from families with no positive relationship or from families characterized by only a positively qualified marital relationship, maybe this family pattern is more related to the maintenance of problem behavior than the other family patterns. A longitudinal study design is required to investigate this possibility.

It is true that in this study the concept of a cross-generational alliance could not be operationalized to its full extent. Actually, our operationalization was limited to only the positive aspects between the parent and the child who were involved in a cross-generational

coalition, without taken into account the more ambivalent aspects of the relationship. It is hypothesized that in a family characterized by a cross-generational coalition, both parents are unable to discipline the child effectively because, by placing the child in a power position equal to one parent and higher compared to the other, the authority of both parents will be undermined (Mann et al., 1990). Besides, the parent in the coalition may increasingly use psychological control mechanisms such as guilt induction, in order to keep the child in emotional alliance (Fauber et al., 1990). And finally, the child may be placed in a loyalty conflict, because of having to choose between parents (Gilbert et al., 1984). As a consequence, the child may judge the relationship with his or her parent as more negative than the parent will do. If this is the case, the parents and children who are involved in a cross-generational coalition would not have a high dyadic score. A high dyadic score, as we have used it in the present study, therefore may only indicate the positively qualified aspects of a cross-generational coalition.

Another obvious limitation of the present study is that whole-family interactions are not able to be covered by the instrument we employed. Because, ratings by individual family members necessarily reflected only the individual's perception of his or her relationship with each of the other family members, certain family characteristics, such as triadic interactions, could not be assessed. However, whole-family interaction may be of considerable importance and different from dyadic interactions (Belsky, 1981; Buhrmester, Camparo, Christensen, Shapiro Gonzalez, & Hinshaw, 1992). Studies using observational methods will be needed to gain more insight in whole-family interactions.

By aggregating scores into a mean dyadic score, which reflects the relatively positive or negative experience of the relationship as perceived by both members of the dyad, we were able to locate the dyad on a scale relative to other dyads. However, an important disadvantage of the computation of this mean score was that differences in perception between family members were blurred. Possibly, it is rather the dissimilarity in perceptions, which accounts for the association with child problem behavior. Therefore, we tested the association between differences in perceptions of family relationships by different family members and the child's problem behavior by performing post-hoc MANCOVAs on the set of CBCL and TRF Internalizing and Externalizing scores with the family pattern as independent variable, and age

and sex as covariates. Following the procedure with the averaged dyadic scores we computed means splits to form large and small dyadic difference scores. Next, we created for each dimension four family patterns, which differ from each other by the number of family relations characterized by large differences in perception. These analyses revealed no differences in the level of child problem behavior between the distinguishing family patterns ($F = 0.56, p > .05; F = 1.01, p > .05; F = 1.10, p > .05; F = 1.02, p > .05$, for restrictiveness, justice, recognition and trust in relation to CBCL scores, respectively, and $F = 1.33, p > .05; F = 0.62, p > .05; F = 0.85, p > .05; F = 1.05, p > .05$, for restrictiveness, justice, recognition and trust in relation to TRF scores, respectively).

Moreover, previous research has demonstrated that family discrepancy cohesion and adaptability scores, which were calculate by computing the absolute differences between the family means and the individual scores for each family member, were not related to any of the child problem behavior scores, while averaged mean cohesion and adaptability scores were (Mathijssen, Koot, Verhulst, De Bruyn, & Oud, 1997). Coupled with the present findings, these results indicate that averaged levels of family functioning and relationships rather than differences in perceptions between family members are of importance in the study of the association between families and child psychopathology.

Family relations were almost not associated with teacher-rated problem behavior. This was contrary to the findings of Forehand et al. (1986), who reported a significant association between the mother-adolescent relationship and teacher-rated externalizing behavior. However, these researchers focused on conflicts in the parent-adolescent relationship and the way these conflicts are handled. Thus, possibly conflicts in the parent-child relationship are more important for the prediction of problems exhibited at school, than the aspects we have measured.

Due to differences in clinical procedures in the three RMHAs, it was not possible for us to obtain a mother- as well as a father-completed CBCL for each family. Hence, we had CBCLs, which were filled in by both parents jointly, and CBCLs, which were completed by both parents separately. In order to get one CBCL score for each family, we decided to aggregate the mother and father scores into a mean. However, we do not know for sure to what extent these mean scores are equivalent to CBCL scores generated jointly by two parents. Tests of

parents. Tests of homogeneity of variances between these two types of scores revealed only few and nonsystematic differences. While the variance in Somatic Complaints and Internalizing scores was larger for the group, who completed the CBCL jointly, the variance in Delinquent Behavior and Externalizing scores was larger for the group, who filled in the CBCL separately. So, if anything the obtained association between family relations and parent ratings of problem behavior may have been reduced somewhat for Somatic Complaints and Internalizing behavior, due to reduction of variance using joint and mean parent ratings together, and may have been somewhat inflated for Delinquent Behavior and Externalizing problems, due to the reverse effect.

It must be stressed that the presented findings were cross-sectional. This means that we could not rule out the possibility that some negative family relationships arose from the problem behavior exhibited by the child rather than being the cause of it. An additional limitation of this study was that the number of subjects in each family pattern, especially the family patterns which were formed to answer the more specific hypotheses, was relatively small. Therefore, some expected effects may not have shown due to relatively low power.

Although the present study had certain limitations, and more research is needed to test our findings, several conclusions can be drawn. First, our results highlight the need to examine both parent-child relationships and the marital relationship. Second, even though we found that the mother-child relationship had more influence on child problem behavior than the father-child relationship, the analyses of the family patterns indicated that a good relationship with both parents protects a child from having a high level of psychopathology. Third, our results give clear support for the hypothesis derived from intergenerational theory that family relations characterized by low justice, recognition, and trust are associated with more child psychopathology. As far as we know, this was the first time that these hypotheses were empirically confirmed. Especially, the concept of justice, which focuses on the balance of give and take between family members, was highly related to child psychopathology and it seems that this concept could play an important role in future studies of child psychopathology.

CHAPTER 4

Predicting Change In Problem Behavior from Child, Family Characteristics and Stress in Referred Children and Adolescents

Jolanda J. J. P. Mathijssen, Hans M. Koot, and Frank C. Verhulst

Abstract

A three-wave longitudinal study-design, with two six-months intervals was used to examine the stability and change in Internalizing, Externalizing, and Total Problem behavior among children and adolescents referred to outpatient mental health services. Our results indicated high stabilities for parent ratings and low to medium stabilities for teacher ratings of child psychopathology across a one-year interval. Additionally, we found decreases in the level of problem behavior. Interindividual differences in change were found for Externalizing and Total Problem behavior, but not for Internalizing. While both the child's temperament and intelligence level and family relations were related to the initial level of parent-rated problem behavior, only intermediary stressful life-events had an influence on the rate of change of child psychopathology.

Introduction

Despite considerable stability for a wide range of problem behaviors, in both referred (Asarnow, Goldstein, Tompson, & Guthrie, 1993; Campbell, 1994; Cantwell & Baker, 1989; Leonard et al., 1996; McMahon, 1994; Ollendick & King, 1994; Stanger, MacDonald, McConaughy, & Achenbach, 1996) and non-referred populations (McConaughy, Stanger, & Achenbach, 1992; Verhulst & Althaus, 1988; Verhulst, Koot & Berden, 1990; Verhulst & Van der Ende, 1991, 1992, 1995), there is also substantial change in the level of problem behavior across time. The variability in pathways of child psychopathology argues for a need

to understand the specific factors which will have an influence on changes in problem behavior. Theoretically, the identification of factors predicting change, increases our knowledge of the development of psychopathology in children and adolescents. Furthermore, our knowledge of mechanisms underlying changes in problem behavior among referred children may provide guidelines for intervention purposes.

Most studies of clinical samples did not focus on possible changes in problem behavior shortly after referral. However, for the planning and evaluation of interventions information on short-term stability and change is indispensable. Therefore, we examined the stability and change of a broad range of problem behavior among children and adolescents referred for mental health services six months and one year after referral. Given the medium to large stabilities found by others over a period ranging from one year follow-up after treatment to six years after referral, we expected to find high stabilities in our study. Besides, given the anticipated high scores on problem behavior at intake we expected to find decreases in problem behavior across a one-year interval.

Although there is much evidence, both from risk factor and resilience research, that child characteristics and family variables are related to increased risk for developing problem behavior (Fergusson & Lynskey, 1996; Garmezy, Masten, & Tellegen, 1984; Jensen, Bloedau, Degroot, Ussery, & Davis, 1990; Rutter, 1992), less is known about the influence of these factors on identified problem behaviors. Therefore, in the present study, we evaluated whether child characteristics and family variables could predict changes in problem behavior among referred children and adolescents.

Among child characteristics showing significant relations to problem behavior, temperament (e.g., Windle, 1991) and level of intelligence (e.g., Goodman, 1995) are of special interest, because they can play important roles in the intervention process. The child's temperamental difficulty has been found to represent a vulnerability to the development of later psychiatric disorders (e.g., Earls & Jung, 1987; Kasen, Cohen, Brook, & Hartmark, 1996; Windle, 1991). Furthermore, empirical evidence suggests that among children at risk to develop problem behavior, those with an easy temperament are the most resilient (Rutter, 1992). Children who are temperamentally more easy manifest a behavioral style characterized by low activity level, approach to new persons and stimuli, high adaptability to changes,

positive mood, high regularity of biological functions, and high attention persistence (Thomas & Chess, 1977; Windle & Lerner, 1986). Given these characteristics, we expected that children with an easy temperament will be more liable to behavioral interventions, and consequently show larger improvement of problem behavior across the year following referral, than children characterized by a difficult temperament.

Negative cross-sectional associations have been found between a child's IQ and problem behavior (e.g., Cook, Greenberg, & Kusche, 1994), with stronger relations for externalizing than for internalizing behavior (Goodman, 1995). Longitudinal studies have demonstrated the predictive value of low IQ for later conduct disorder (Schonfeld, Shaffer, O'Connor, & Portnoy, 1988) and for persistence in disruptive problem behavior (Fergusson, Lynskey, & Horwood, 1996). Moreover, resilience research has shown that high IQ was protective against later delinquent behavior (White, Moffit, & Silva, 1989). Given the evidence of a negative relation between IQ scores and children's recognition and understanding of their own and others' emotions (Cook et al., 1994), we expected that more intelligent children would be more likely to gain insight in their own behavior and its possible consequences. We hypothesized that as a result they would show larger decreases in problem behavior after referral to the mental health services than less intelligent children, especially in externalizing behavior.

Finally, concerning family variables, several theorists have hypothesized that family functioning plays an important role in the onset and maintenance of problem behavior (Hetherington & Martin, 1986). Although numerous studies have demonstrated the relation of family functioning to various forms of psychopathology in children, these studies have been predominantly cross-sectional. However, recent longitudinal studies have largely confirmed the cross-sectional results. Aspects of family functioning have proven to be valuable predictors of the course and persistence of problem behavior in both non-referred (Blanz, Schmidt, & Esser, 1991; Campbell, 1994; Esser, Schmidt, & Woerner, 1990; Fergusson et al., 1996; Offord et al., 1992; Seifer, Sameroff, Baldwin, & Baldwin, 1992; Vuchinich, Bank, & Patterson, 1992; Windle, 1992) and referred children and adolescents (Asarnow et al., 1993; Hoge, Andrews, & Leschied, 1996; Van Furth et al., 1996). For example, Hoge et al. (1996) found that both family relationship problems and family structuring problems, such as lack of

or inconsistent discipline, were related to heightened rates of re-offending and lower adjustment in delinquent youths. Unfortunately, researchers of clinical samples have focused on only one specific diagnostic group, i.e., either depressive children, adolescents with eating disorders, or juvenile delinquents. Consequently, it remains unclear whether family functioning is equally related to different forms of problem behavior, e.g., internalizing versus externalizing.

In contrast to the possible ameliorating effects of an easy temperament, high level of intelligence and positive family relations, stressful life-events which have occurred after the time of referral may be a risk factor for the deterioration of problem behavior. Longitudinal studies of nonclinical samples by Berden, Althaus, and Verhulst (1990) and Compas, Howell, Phares, Williams, and Giunta (1989) have demonstrated that stressful events increased the level of problem scores, with stronger effects for externalizing than for internalizing behavior. Moreover, in a follow-up of formerly daytreated or residentially treated children, Veerman (1995) found that negatively experienced life-events were related to the level of both internalizing and externalizing behavior at follow-up. Therefore, we hypothesized that intermediary stressful life-events would have a deteriorating effect on child problem behavior.

In sum, the aims of the present study were: (a) to test the half-year and one-year stability and change of a broad range of problem scores for referred children via standardized parent and teacher ratings; (b) to study the influence of the child's temperament, level of intelligence, family relations and stressful life-events on the change of problem behavior.

Method

Subjects

The sample was selected from families, referred to one of three Regional Mental Health Agencies (RMHAs) in the greater Rotterdam area, Capelle aan den IJssel, or Delft. To be included in the sample, families and children had to meet the following criteria: children were between 9 and 16 years old; the children were not diagnosed as mentally handicapped or autistic; parents and children had enough command of the Dutch language to complete questionnaires; they were not referred to another institute immediately after intake; the children were the immediate reason for the referral; both parents were informed about the

referral; the child had lived at least during half a year in the current family.
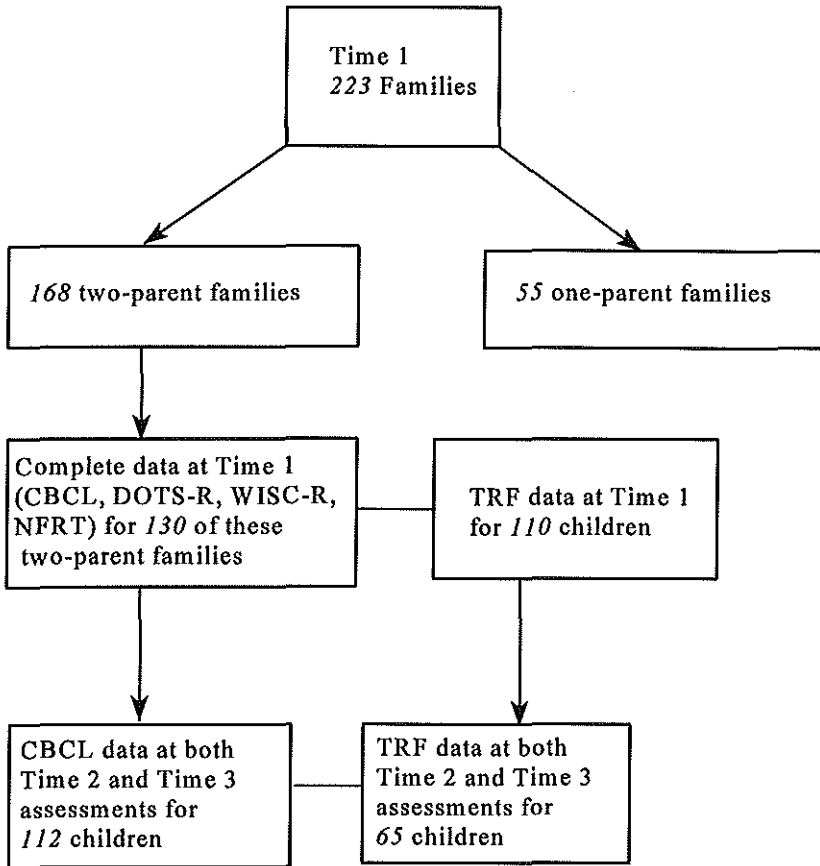
Between March 1993 and December 1994, 471 families with children between 9 and 16 years old were referred to one of the three RMHAs, 401 of which met the criteria for inclusion in our study.

At intake, the purpose of the study was explained to parents by a mental health worker of the RMHA. At the same time parents were asked for participation. However, 57 families were not asked for participation by the mental health worker. For 47.7% of these cases ($n = 27$), the mental health worker omitted to introduce the study, and it was not possible to ask for participation later on, because the family had just a single consultation. For only 14 of the remaining 30 families (24.5%) the mental health worker purposely did not introduce the study. Motives mentioned were: resistance against testing, crisis situation, or the study was considered too much of a burden to the family or child.

Of the 344 remaining families 223 (64.8%) participated in our study. Of these families 168 consisted of two parents. At Time 1 complete data on parenting ratings on the Child Behavior Checklist (CBCL; Achenbach, 1991a) and on the predictor variables, i.e., temperament, intelligence, and family relations as perceived by both mothers, fathers and children was available for 130 two-parents families. No significant differences were found between the two-parent families who were excluded ($n = 38$) because of incomplete information and the families with complete data ($n = 130$) with respect to problem behavior, sex and age of the child, and parental occupational and educational level. Usable Time 1 teacher ratings on the Teacher's Report Form (TRF; Achenbach, 1991b) were obtained on 110 of these 130 (84.6%) children. Parents and teachers completed the same questionnaires six months after the first assessment (Time 2) and again six months after the second assessment (Time 3). For 112 children usable CBCLs were obtained at both Time 2 and Time 3 (86.2 % of the Time 1 sample). Besides, 65 TRFs were available at Time 2 as well as at Time 3 (59.1% of the Time 1 TRF sample). (See also Figure 4.1).

Figure 4.1

Sample Recruitment

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                    ┌─────────────────────┐
                    │     Time 1          │
                    │   223 Families      │
                    └─────────────────────┘
                      /                 \
                     /                   \
   ┌──────────────────────────┐    ┌──────────────────────────┐
   │ 168 two-parent families  │    │ 55 one-parent families   │
   └──────────────────────────┘    └──────────────────────────┘
              │
              ▼
   ┌──────────────────────────┐    ┌──────────────────────────┐
   │ Complete data at Time 1  │    │ TRF data at Time 1       │
   │ (CBCL, DOTS-R, WISC-R,   │────│ for 110 children         │
   │ NFRT) for 130 of these   │    │                          │
   │ two-parent families      │    │                          │
   └──────────────────────────┘    └──────────────────────────┘
              │                                │
              ▼                                ▼
   ┌──────────────────────────┐    ┌──────────────────────────┐
   │ CBCL data at both        │    │ TRF data at both         │
   │ Time 2 and Time 3        │────│ Time 2 and Time 3        │
   │ assessments for          │    │ assessments for          │
   │ 112 children             │    │ 65 children              │
   └──────────────────────────┘    └──────────────────────────┘
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Note. CBCL = Child Behavior Checklist; DOTS-R = Revised Dimensions
of Temperament Survey; WISC-R = Wechsler Intelligence Scale for
Children-Revised; NFRT = Nijmegen Family Relations Test; TRF =
Teacher's Report Form

In order to test whether there was a selective loss of families, we compared the dropouts ($n = 18$) with the remainers ($n = 112$) with respect to sex, age, intelligence level and temperament of the child, parental occupational and educational level, Time 1 CBCL Total Problem scores, Internalizing and Externalizing scores, and Time 1 family relationship scores. These tests revealed no significant differences between the two groups. Also Time 1 TRF Total Problems, Internalizing, and Externalizing scores did not differ between the group of children for whom TRF data was available on both follow-up assessments ($n = 65$) versus the group for whom data was missing on either one or both follow-up assessments ($n = 45$).

The 112 families for whom we had CBCL data at both follow-ups consisted of 75 boys and 37 girls (mean age = 11.1 years, $SD = 2.2$). Mothers were on average 38.6 years old ($SD = 5.1$) and fathers were on average 41.1 years old ($SD = 5.5$). The mean occupational level of mothers on a 6-point scale (6 = highest; Van Westerlaak, Kropman, & Collaris, 1975) was 2.87 ($SD = 1.05$), and of fathers 3.42 ($SD = 1.58$). Mean parental educational level according to a 7-point scale (7 = highest; Standard Educational Classification, CBS, 1987) was 3.06 ($SD = 1.48$ for mothers), and 3.30 ($SD = 1.82$) for fathers. Of the parents 89.3% were married, 8.9% were cohabiting, and 1.8% had a partner who was involved in the caregiving of the child, but were not living together. In 82.1% of the cases the child was living with both biological parents, 12.5% with the biological mother and partner, 2.7% with adoption parents, 1.8% with the biological mother alone, and 0.9% with the biological father and partner. Main reasons for referral, based on information from the parents, were emotional problems (50.9%), behavior problems at home (42.0%), problems in child-peer relationships (27.7%), behavior problems at school (19.6%), school and learning problems (18.1%), problems in the parent-child relationship (17.9%), sleep and/or eating problems (14.3%), and problems in child-sibling relationships (11.6%). For 85 (75.9 %) children two or three problems were mentioned.

Procedure

If parents agreed to participate they were contacted by telephone to make further appointments. The assessment session was scheduled at one of the three RMHAs. At the outset of the session, the interviewer explained the procedure and obtained written consent

from the parents. The parents were interviewed about demographic characteristics, the reasons for referral, and earlier treatment for mental health problems of the child or other family members. Next parents and children completed the Nijmegen Family Relations Test (NFRT; Oud & Welzen, 1989), and parents completed the Dutch version of the Child Behavior CheckList (CBCL; Achenbach, 1991a), and the Dutch version of the Revised Dimension of Temperament Survey (DOTS-R; Windle & Lerner, 1986). The items of the NFRT were read aloud to the children by a research assistant. The intelligence level of the children was tested with the Dutch version of the Wechsler Intelligence Scale for Children-Revised (WISC-R; Van Haasen et al., 1986). After obtaining the parents' consent to gather information on the child's behavior at school, the TRF was sent to the teacher.

Six months after the first assessment the mental health worker of each family was contacted to inquire whether there were any objections to approach the family for a follow-up. If there were no objections parents were contacted by telephone. If parents agreed to participate a set of questionnaires (NFRT, CBCL, a Life-Events Questionnaire, and a questionnaire about perceived changes in problem behavior, changes in family functioning, and perceptions about received help) was sent to them and an appointment was made to complete the NFRT with the children. For two families (1.5%) for whom a Time 1 CBCL was available the mental health worker refused at Time 2 to give permission to contact these families.

After six months 54.5% of the parents ($n = 61$) reported that they still received treatment from the RMHA, after a year this had decreased to 31.3% ($n = 35$). Forty-four families (39.3%) ended the treatment, because the problems were either solved, sufficiently improved or the first consultations were sufficient to go on further without help. Twenty families (17.9%) ended the treatment, because they either did not see the purpose of help, they did not see any improvements of the child's behavior, or they were otherwise not satisfied about the help received. The remaining 13 families were either referred to another agency (5.4%), ended treatment on the recommendation of the RMHA (5.4%), or moved to another province (0.9%). The mean number of therapeutic sessions across a one-year interval was 14.4 (range 1-61; $SD = 12.7$).

Measures

Problem Behavior. *The Child Behavior CheckList 4-18* (CBCL; Achenbach, 1991a) and the *Teacher's Report Form* (TRF; Achenbach, 1991b) were used to obtain standardized parent and teacher reports on children's behavioral/emotional problems. The CBCL and the TRF both contain 120 problem items to which the respondent can answer '0' if the problem item is not true of the child, '1' if the item is somewhat or sometimes true, and '2' if it is very true or often true. Of the problem items 95 are the same on both instruments. By summing 1s and 2s eight syndromes (*Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior,* and *Aggressive Behavior*), two broad-band groups of syndromes *Internalizing* and *Externalizing,* and a *Total Problem* score can be computed. The Internalizing group consists of the Anxious/Depressed, Somatic Complaints, and Withdrawn syndromes. The Externalizing group consists of the Aggressive and Delinquent Behavior syndromes. The reliability and validity for the Dutch versions of both the CBCL and the TRF was demonstrated in several studies (Verhulst & Akkerhuis, 1986; Verhulst, Akkerhuis, & Althaus, 1985; Verhulst, Berden, & Sanders-Woudstra, 1985). At Time 1, in 4 cases the CBCL was completed by the mother alone, in 47 cases by both parents together, and in 61 families both parents filled in a CBCL separately. At Time 2, we had 9 mother-completed CBCLs, 2 CBCLs which were completed by both parents together, and 101 CBCLs which were completed by fathers and mothers separately. Finally, at Time 3, we had 15 mother-completed CBCLs, 1 father-completed CBCL, and for 96 children we had both a mother- and a father-completed CBCL. In case of two CBCLs for one child, the scores from mothers and fathers were summed and divided by two.

For 8 children the same teacher completed the TRF at all three assessments, for 14 children the TRF was filled in by three different teachers, and for the remaining 43 children either the same teacher completed the TRF at both Time 1 and Time 2 ($n = 14$) or the same teacher completed the TRF at both Time 2 and Time 3 ($n = 29$).

Intelligence. Because an estimate of an intelligence level was deemed adequate for our study, only two verbal (Vocabulary, Similarities) and two performance (Block Design, Picture Arrangement) subtests of the *WISC-R* (Van Haasen et al., 1986) were used to assess the children's level of intelligence. These subtests were selected because of their high correlations

with the full scale score ($r = .90$; Silverstein, 1970). Raw subtest scores were transformed into normalized standard scores for each age separately, according to Dutch norms. The normed scores of each individual for each subtest were summed and divided by four to get one score of intelligence. The mean level of intelligence with a theoretical range of 1-19 was 9.8 (SD= 2.4), with higher scores reflecting higher intelligence.

Temperament. To assess children's temperament according to parent ratings, the Dutch translation of the *Revised Dimensions of Temperament Survey* (DOTS-R; Koot, 1993; Windle & Lerner, 1986) was used. The DOTS-R consists of 54 4-point items, ranging from 'usually false' to 'usually true'. In order to construct one temperament score, all items were summed. Besides, in order to get a more reliable estimate of temperament (e.g., Horowitz, Inouye, & Siegelman, 1979; Rushton, Brainerd, & Pressley, 1983; Schwarz, Barton-Henry, & Pruzinsky, 1985) the temperament scores of mothers and fathers were summed and divided by two, with higher scores reflecting an easier temperament. Cronbach's alpha computed for the composite temperament score based on mother's and father's score was .88.

Family Relations. The *Nijmegen Family Relations Test* (NFRT; Oud & Welzen, 1989) comprises of 67 5-point items, and is designed to measure the child's perception of his/her relation with other family members. The items are read aloud to the child and the child indicates on a score form the extent to which each item is true for its family members. On base of the child's version of the NFRT a parent's version was constructed. Only 5 items had wordings that were slightly different from the original child's version. The NFRT operationalizes six relational dimensions. These dimensions were derived by means of confirmatory factor analyses, executed on base of the answers of 440 8- to 13-years-old primary school children, on 70 items. For this study we used only four dimensions. The dimension restrictiveness was used to measure negativity in family relations. The dimensions justice, recognition, and trust were used to measure concepts, which are derived from the intergenerational family theory of Boszormenyi-Nagy (Boszormenyi-Nagy & Sparke, 1973; Boszormenyi-Nagy & Ulrich, 1981). Although these constructs are not identical to concepts of family relations that can be found in the general literature, they resemble them in important ways. The dimension justice shows a lot of overlap with the dimension of rejection. However, in contrast to 'rejection', the emphasis of 'justice' is on the mutuality between both members

of the dyad. Therefore, 'justice' could best described as 'reciprocal rejection'. Besides, the concepts of 'recognition' and 'trust' are intrinsic aspects of the concept 'support', which is stemming from socialization theories (e.g., Maccoby & Martin, 1983; Rollins & Thomas, 1979). *Restrictiveness* (12 items) is the degree to which the respondent experienced that the other family member places demands on him/her (e.g., 'This person expects too much from me', 'I am afraid to make a mistake when this person is with me'). *Justice* (12 items) refers to the way the balance of giving and taking in the relationship with the other is experienced (e.g., 'Whatever I do, this person is never satisfied by me', 'This person usually takes care for him/herself first'). *Recognition* (13 items) expresses the extent the respondent experiences that his or her presence and behavior is appreciated by the other (e.g., 'This person is proud of me', 'This person often looks approvingly to me'). *Trust* (13 items) is the extent to which the respondent can count on another family member and the extent to which perceptions of the respondent and the other correspond with each other (e.g., 'This person will really help me when I need him/her', 'I agree on many things with this person'). The NFRT has been demonstrated to discriminate well between families of referred and non-referred children aged 9 to 12 years (Oud & Welzen, 1989).

A family composite score was derived by summing the z-scores for the four dimensions for each dyadic family relationship, as perceived by each of the family members involved in the dyad, with higher scores indicating more positive family relations. Cronbach's alpha computed for the family mean score on basis of the individual family members' scores was .92. Correlations of scores between family members ranged from .00 (association between trust in the father-child relationship as perceived by the child and justice in the father-mother relationship as perceived by the father) to .84 (association between restrictiveness in both the mother-child dyad and the father-child dyad, as rated by the child), with a median of .23.

Stressful Life-Events. A slightly modified version of the *Life-Events Questionnaire* (LEQ; Berden et al., 1990) was used to determine the total number of stressful experiences that had occurred between Time 1 and Time 2, and between Time 2 and Time 3. Only those events for which parents indicated that they have had a negative impact on the child and which were not directly related to the child's problem behavior were used in this study (e.g., job-loss of father, parent left the family, death of a friend of the child, hospitalization of the child,

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parents, or siblings). A stressful life-events score was computed by summing all events reported across the one-year interval. Parents reported 0 to 4 stressful life-events for their children in this sample (mean = 0.5, *SD* = 1.0). At Time 2 the LEQ was completed by 74 mothers (66.1%), 13 fathers (11.6%), and 25 parents completed the questionnaire together. At Time 3 these numbers were respectively 79 (70.5%), 16 (14.3%), and 17 (15.2%) for mothers, fathers, and parents together. In 67.0% of the cases (*n* = 75) the LEQ was both at Time 2 and Time 3 completed by the same person.

The LEQ has been shown to possess good test-retest and interparent reliability (Berden et al., 1990).

Statistical Analyses

To determine the stability of parent and teacher ratings of problem behavior Pearson product-moment correlations were computed between problem scores obtained at Time 1 and similar scores obtained at Time 2 and Time 3, for each rater (parent and teacher) separately. Also the stability coefficients between Time 2 and Time 3 were computed.

To assess individual change in problem behavior and the possible predictors of change we made use of latent growth modeling (LGM). In general, LGM consists of two stages. At the first stage, each child's development of problem behavior over time is represented by individual growth parameters (i.e., the intercept and slope). In LGM it is assumed that the observed status of child problem behavior at a given time is a function of a constant + systematic growth trajectory + random error (Bryk & Raudenbusch, 1992; Francis, Fletcher, Stuebing, Davidson, & Thompson, 1991; Willet & Sayer, 1994). The intercept (or constant) represents the initial level of problem behavior, i.e., the true problem behavior at Time 1. The slope describes the average rate of change in problem behavior for each individual and is determined by the repeated measures. At the second stage the growth parameters (intercept and slope) are allowed to vary across subjects. The extent to which we found interindividual differences in these parameters indicates the possibility for identifying predictors of change.

Following the method described by Willet and Sayer (1994) we used covariance structure modeling utilizing LISREL 8 (Jöreskog & Sörbom, 1993).

Results

Descriptive Data

To obtain information on the possible typicality of this referred sample, CBCL and TRF Total Problem, Internalizing, and Externalizing scores were compared to those obtained for a large sample of consecutive referrals of children of comparable age and sex ($N = 2004$, $N = 1692$ for CBCL and TRF scores, respectively) referred to all RMHAs in the Rotterdam region during an 18 month period (Verhulst, Van der Ende, & Koot, 1996). These comparisons revealed only one significant difference for boys younger than 11 years, indicating that they had somewhat higher mean CBCL Internalizing scores ($t = 2.46$; $p \leq .05$) than boys of the same age in the comparison sample. The comparison with TRF scores revealed no significant differences. This means that, in general, levels of parent- and teacher-reported problem behavior scores found in our sample were highly comparable to the comparison group.

Pearson product-moment correlations were computed to determine the associations among the predictor variables, and between the predictor variables and problem behavior scores at both Time 1, Time 2, and Time 3. These correlations are given in Table 4.1.

Stability of Problem Behavior Scores

The stability coefficients of parent and teacher ratings of problem behavior are given in Table 4.2.

According to Cohen's (1988) criteria for the magnitude of correlations, the half-year and one-year stabilities of parent-rated problem behaviors were large (all coefficients $\geq .50$). The stability coefficients for teacher-rated problem behavior were all lower than for parent-rated behavior. Only large stabilities were found at a half-year interval for Externalizing. One-year stabilities for teacher ratings were either medium or small, with medium stability for Externalizing, and small but non-significant stabilities for Internalizing and Total Problems.

Table 4.1

Intercorrelations of Predictors and Problem Behavior Scores

	Intelligence	Temperament	Family Relations	Stress
Intelligence	1.00			
Temperament	- .01	1.00		
Family Relations	- .14	.43**	1.00	
Stress	- .06	- .33**	- .23**	1.00
Tbpc	- .10	- .53**	- .41**	.30**
Tbpc2	- .09	- .50**	- .37**	.34**
Tbpc3	- .17	- .55**	- .40**	.45**
Extc	- .11	- .43**	- .38**	.15
Extc2	- .09	- .36**	- .30**	.21*
Extc3	- .14	- .45**	- .37**	.34**
Intc	- .05	- .45**	- .29**	.32**
Intc2	- .02	- .49**	- .33**	.37**
Intc3	- .09	- .56**	- .43**	.45**
Tbpt	- .11	- .12	- .09	.15
Tbpt2	- .05	- .10	- .13	.32**
Tbpt3	- .22	- .19	- .15	.15
Extt	.03	- .01	.00	.00
Extt2	.02	- .01	- .06	.12
Extt3	- .13	- .18	- .09	.07
Intt	- .15	- .08	- .04	.17
Intt2	- .08	- .02	- .03	.31**
Intt3	- .25*	- .06	- .01	.22

Note. Tbpc = parent-rated Total Problems; Extc = parent-rated Externalizing; Intc = parent-rated Internalizing; Tbpt = teacher-rated Total Problems; Extt = teacher-rated Externalizing; Intt = teacher-rated Internalizing. * $p \leq .05$. ** $p \leq .01$.

Table 4.2
Half-Year and One-Year Stability Coefficients for CBCL and TRF Scores

	T1-T2	T2-T3	T1-T3
Child Behavior Checklist ($n = 112$)			
Total Problems	.73	.81	.69
Externalizing Problems	.78	.85	.73
Internalizing Problems	.62	.73	.59
Teacher's Report Form ($n = 65$)			
Total Problems	.40	.47	.22 NS
Externalizing Problems	.65	.55	.38
Internalizing Problems	.40	.29 *	.23 NS

Note. NS = Not significant; * $p \leq .05$. All other stability coefficients were significant at $p \leq .01$.

To determine the categorical stability of problem behavior, we computed odds ratios to predict the risk of deviance at Time 2 and Time 3, using the borderline criterion (i.e., scores above the 85th percentile; Verhulst et al., 1996), for children who could be regarded deviant at Time 1, relative to the risk of being deviant at follow-up given a nondeviant score at Time 1. The odds ratios and the percentage of the children who were deviant at Time 1 and who remained deviant on the corresponding scales at Time 2 and Time 3 are presented in Table 4.3. The odds ratio indicates that, for example, children who scored deviant at Time 1 Total Problems were 40.9 times more likely to be deviant at Time 2 Total Problems than children who were not deviant at Time 1.

Change of Problem Behavior Scores

Preliminary exploration of our data suggested that a straight-line function was the most appropriate way to model the change in problem behavior, for both parent and teacher ratings. Therefore, we tried to fit a two-factor model, concerning the intercept and the linear slope.

First, we modeled each child's problem behavior trajectory. The results of these analyses are presented in Table 4.4. The first two rows describe the mean initial level of problem behavior scores (intercept) and the mean growth rate (slope) per six months in our sample.

Table 4.3

Percentage of Children Scoring in the Deviant Range of the CBCL and TRF
Internalizing, Externalizing and Total Problems Scores at Time 1 who still scored in the
Deviant Range at Follow-Up, and Odds Ratios (OR) of Scoring in the Deviant Range at
Time 2 and Time 3 Given a Deviant Score at Time 1 Relative to Those Without a
Deviant Score at Time 1.

		T2			T3		
		%	(OR)	CI	%	(OR)	CI
CBCL							
Total Problems	(83.0%)[a]	82.8	40.9	(8.6 - 194.9)	67.7	37.8	(4.8 - 296.6)
Externalizing	(59.8%)	79.1	11.7	(4.8 - 28.8)	76.1	9.9	(4.1 - 23.8)
Internalizing	(73.2%)	74.3	11.6	(4.2 - 32.3)	62.2	5.4	(2.1 - 14.1)
TRF							
Total Problems	(61.5%)	57.5	2.9	(1.1 - 8.2)	60.0	-	-
Externalizing	(44.6%)	55.2	7.6	(2.3 - 25.2)	44.8	-	-
Internalizing	(50.8%)	45.5	-	-	39.4	3.5	(1.1 - 11.5)

Note. [a] = percentage of children who scored in the deviant range at Time 1. CI = 95% Confidence
Interval for the Odds Ratio.

The parameter estimates indicate significant mean intercepts for both parent- and teacher-
rated problem behavior. Besides, significant mean slopes were observed for all but TRF
Externalizing, indicating decreases in Total Problems and Internalizing as reported by both
parents and teachers and a decrement in parent-rated Externalizing behavior. The significance
of both parameters indicate that they are significantly different from zero, and therefore
necessary for describing the mean growth trajectory.

The entries in the third and fourth row describe the interindividual variation in initial
problem behavior and growth rate. The significant variances of initial level for both CBCL
and TRF problem scores indicate that children vary significantly in the extent of problem
behavior they exhibited at the time of referral. Furthermore, the significant variances in
growth rates for Externalizing behavior and Total Problems as reported by both parents and

Table 4.4
Linear Model of Growth in Child Problem Behavior

Parameters		CBCL ($n = 112$)			TRF ($n = 65$)		
		Tbpc	Extc	Intc	Tbpt	Extt	Intt
Mean initial level		51.03**	17.10**	15.45**	43.03**	12.49**	13.09**
	SE	(1.98)	(0.84)	(0.75)	(3.39)	(1.52)	(1.18)
Mean growth rate		- 4.90**	- 1.10**	- 1.91**	- 4.80*	- 0.73	- 2.56**
	SE	(0.86)	(0.32)	(0.33)	(2.19)	(0.90)	(0.69)
Variance of initial level		352.76**	67.97**	47.24**	443.03**	106.84**	52.53**
	SE	(59.50)	(10.69)	(8.65)	(139.82)	(27.02)	(17.19)
Variance of growth rate		31.37**	5.13**	3.21	133.08*	27.17**	8.13
	SE	(12.79)	(1.80)	(2.08)	(62.69)	(10.07)	(6.68)
Covariance between level and growth		0.13	- 2.73	- 5.17	- 136.38	- 23.94	- 18.84*
	SE	(19.64)	(3.14)	(3.23)	(77.57)	(13.17)	(9.21)

Note. CBCL = Child Behavior Checklist; TRF = Teacher's Report Form;
Tbpc = parent-rated Total Problems; Extc = parent-rated Externalizing; Intc = parent-rated Internalizing;
Tbpt = teacher-rated Total Problems; Extt = teacher-rated Externalizing; Intt = teacher-rated Internalizing.
* $p \leq .05$. ** $p \leq .01$.

teachers indicate that individual variation existed in the development of problem behavior across time. Finally, the negative significant covariance between initial level of teacher-rated Internalizing behavior and growth rate indicates that children who score higher on Internalizing at referral tended to decrease in problem behavior at a somewhat faster rate than those scoring lower on Internalizing.

Prediction of Initial Level and Change Rate

Having detected interindividual deviations in change of Total Problems and Externalizing behavior, we could examine the predictive value of the child characteristics intelligence and temperament, family relations, and stressful life-events on change. For Internalizing we could only test the associations between child characteristics and family relations and the initial level of problem behavior. Preliminary analyses indicated that neither sex nor age did emerge as a significant predictor of change in any of the problem behavior scores. We only found two sex effects on initial level of parent-rated Externalizing behavior and on teacher-rated Internalizing, indicating higher CBCL-Externalizing and lower TRF-Internalizing scores for boys than girls. Therefore, we included sex as a covariate in the analysis of CBCL-Externalizing and of TRF-Internalizing.

Estimating the influence of intelligence, temperament and family relations assessed at intake on both initial level and on the change of CBCL Total Problems, and the influence of intermediary stress on change yielded a χ^2 (8 *df*, $n = 112$) of 9.62 ($p = 0.29$) and an adjusted goodness-of-fit-index (AGFI) of .93. Significant effects of temperament ($\beta = -0.47$, $t = -4.96$, $p \le .01$), and family relations ($\beta = -0.27$, $t = -2.85$, $p \le .01$) on initial level of Total Problems and a significant influence of stress ($\beta = 0.44$, $t = 3.21$, $p \le .01$) on change in Total Problem behavior were found. These results indicate that children with an easy temperament and more positive family relations at intake showed a lower level of Total Problems. Furthermore, children who experienced more intermediary stressful life-events showed an increase in Total Problems across a one-year interval. Altogether, 42% of the variance in initial level and 21% of the variance in growth rate could be explained by these predictors.

The model for CBCL Externalizing revealed a χ^2 (10 *df*, $n = 112$) of 14.05 ($p = 0.17$) with an AGFI of .90. The child's intelligence level and temperament, sex and family relations were

predictive of the initial level of Externalizing problem behavior, indicating that children who were more intelligent (β = -0.18, t = -2.09, $p \leq .05$), children with an easy temperament (β = -0.32, t = -3.34, $p \leq .01$), girls (β = -0.27, t = -3.40, $p \leq .01$), and children from families with more positive relations (β = -0.26, t = -2.73, $p \leq .01$) showed a lower level of Externalizing problem behavior at intake. Moreover, a significant effect of stress on change was found, indicating that children for whom more intermediary stressful life-events were reported showed an increase in Externalizing problem behavior (β = 0.44, t = 3.26, $p \leq .01$). In total, 34% of the variance in initial level and 18% of the variance in growth rate of Externalizing problems could be explained by these predictors.

Finally, both temperament (β = -0.46, t = -5.82, $p \leq .01$) and family relations (β = -0.21, t = -3.61, $p \leq .01$) were associated with a lower level of parent-rated Internalizing behavior at intake (χ^2 (9 df, n = 112) of 13.11, p = 0.15, AGFI = .92), indicating that children with an easy temperament and more positive family relations show less Internalizing problems at intake. In total, 34% of the variance in initial level of Internalizing could be explained by these factors.

The analyses for teacher-rated problem behavior revealed no significant effects of predictor variables neither on initial level nor on change. Although preliminary analyses had indicated that sex had an effect on the level of TRF-Internalizing at intake, this effect disappeared when also the effects of intelligence, temperament, and family relations were controlled for.

Interactions. Since the child's intelligence and temperament, and the quality of family relations may moderate the relation between stress and the change of problem behavior, we examined possible interaction effects between these predictor variables and stress on change of problem behavior. In order to eliminate potential problems of multicollinearity between intelligence, temperament, family relations, and stress and the interaction terms we followed the recommendations of Aiken and West (1991) and centered each of the variables by putting them into deviation score form by subtracting the sample mean from all individual's scores on the variable.

These analyses revealed only one significant interaction effect, viz. for stress and temperament on the change in CBCL Total Problems (β = -.31, t = -2.29, $p \leq .05$), indicating

that stress had stronger influence on the deterioration of problem behavior in children with a difficult temperament.

Discussion

Our first aim was to test the short-term stability and change of parent- and teacher-rated problem behavior in a sample of children and adolescents referred for mental health services. In general, large stabilities for parent-rated problem behavior, and small to medium stabilities for teacher-rated behavior were found. This is in keeping with results, reported by others across a longer time interval for both clinical and general population samples (McConaughy et al., 1992; Stanger et al., 1996; Verhulst & Althaus, 1988; Verhulst, Koot & Berden, 1990; Verhulst & Van der Ende, 1991, 1992, 1995). The lower stability for problem behavior, reported by the teacher, probably also reflects rater effects, since the TRF was not completed by the same teacher each time. Inspection of the half-year stability coefficients of TRF scores completed by the same teacher revealed correlations in the same order as for parents (ranging from .57 to .87).

Stability coefficients can tell us to what extent children maintain their rank orders across time. However, despite high stability the level of problem behavior may also show changes. Therefore, we examined the change in mean levels of parents' and teachers' reports of children's problem behavior by using growth curve analyses. Averaged across all children our analyses indicated decreases of both parent ratings and teacher ratings of problem behavior, except for teacher-rated Externalizing. Since by using growth curve analyses we controlled for measurement error and since the decrease in problem behavior was reported by parents as well as by teachers, we may suggest that overall the behavior of the children had really improved one year after referral.

Although we found significant decreases in the mean levels of problem behavior, the categorical analyses revealed that, at least for parent ratings, more children persist than desist in problem behavior. This indicates that although mean levels of problem behavior dropped across the one-year interval, this drop was not sufficient for most children to score below the borderline range (85th percentile of the norm group; see Verhulst et al., 1996) one year after referral for mental health services. Rather, average problem scores dropped to just above the

borderline range. Besides, average total problem scores remained more than one standard deviation above the general population mean for both CBCL and TRF.

Interindividual differences in initial level of problem behavior were observed for both parent and teacher ratings. The child's temperament as well as the quality of family relations at intake were associated with initial level of parent-rated Total Problems, Externalizing, and Internalizing, indicating that children with an easy temperament and living in a family with positive relations exhibited less problem behavior at intake. Besides, more intelligent children and girls had less CBCL Externalizing scores at referral. For teacher-rated problem behavior scores we did not find significant associations with either child characteristics or family relations.

Interindividual differences in rate of change were observed for both parent- and teacher-reported Total Problems and Externalizing. Only intermediary stressful life-events were predictive for the rate of alteration in CBCL Total Problems and Externalizing, indicating that children who experienced stressful life-events during the one-year study interval showed a deterioration in problem behavior. As was the case with the initial level of problem behavior, no significant effects were found for any of the predictors on change in teacher-rated problem behavior. Interestingly, we did not find significant interindividual differences in the rate of alteration in Internalizing behavior. As a consequence it was not conceivable to examine possible predictors of change. These results suggest that, at least in the short term, no deviations exist in the extent of amelioration in Internalizing among referred children. Possibly, as opposed to Externalizing, the differences in change of Internalizing become only just clear after a longer time interval.

In sum, although the child's intelligence level, temperament and the quality of family relations had an influence on the initial level of parent-rated problem behavior, they could not predict changes in either Total Problems or Externalizing scores. These findings suggest that the factors intelligence, temperament, and family relations have an effect on the onset of problem behavior, but no influence on the short-term developmental course in childhood and adolescence.

However, an alternative explanation for the absence of an effect of family relations could be that it is not the quality of family relations measured at Time 1, but rather the change in

family relations, i.e., either improvement or deterioration, which will be related to changes in problem behavior. Within the scope of the present study it was not possible to study this suggestion. In further studies we intend to examine the relation between changes in problem behavior and changes in family relations.

The only variable which added consistently to the prediction of change in parent-rated Externalizing and Total Problems was stressful life-events. Stressful life-events require an adaptability of the child to deal with these changes in his or her life. Possibly, these events overwhelm the coping capacity of children who already exhibit problem behavior, and therefore prevent the problems from amelioration.

Although temperament did not have a main effect on the course of problem behavior, examination of interaction effects revealed that the influence of stressful life-events on the aggravation of Total Problems was stronger in case of a difficult temperament. This finding is in accordance with risk factors and resilience research in which it has been demonstrated that individual characteristics could buffer against the effects of stress on the child's behavior (e.g., Rutter, 1992; Seifer et al., 1992). Our finding implies that is of great importance that clinicians are attentive to the occurrence of stressful life-events in the course of treatment, especially if the child has a difficult temperament. Since both temperament and stressful life-events are hard to influence, a next step would be to study the factors, which can mediate the relationship between temperament, stress, and child problem behavior.

The relatively strong association in this study between the child's temperament and parent-rated problem behavior raises the question of sufficient distinction between both constructs. However, one could also argue that the strong association only indicates that children with a difficult temperament also show more problem behavior. This suggestion is further supported by nearly the same correlations between temperament at Time 1 and both Time 1, Time 2 and Time 3 assessed problem behavior. This suggests that, despite changes in the mean level of problem behavior children with an easy temperament tend to have less problem behavior than children with a more difficult temperament. Moreover, if both concepts would coincide than we would not have found significant associations of family relations and level of intelligence with initial level of problem behavior over and above the effects of temperament. In addition, it is also unlikely that, in case of measuring the same concept, we would have found an

interaction effect between temperament and stress on the rate of change in problem behavior. Finally, the study by Maziade, Caron, Côté, Boutin, and Thivierge (1990) has also demonstrated that psychiatric disorders were not equivalent to the construct of temperament.

The absence of significant predictors and interaction effects on the change of teacher-rated problem behavior could be ascribed to different possible causes. First, the relatively few teacher-ratings available in this study across all times of measurement have resulted in reduced power to evaluate effects. Second, as shown by Offord, Boyle and Racine (1989) correlates of disorder may differ in important ways by the informant of child problem behavior. Thus maybe the change in teacher-rated problem behavior could be predicted by other variables than we have studied. Since in most cases the Time 3 TRF was completed by another teacher than the Time 1 TRF, it is not inconceivable that observed changes could, at least partly, be ascribed to rater effects.

Certainly, our study faces some limitations. First, because of the short follow-up period it is not clear whether the decrease in problem behavior continued after the study period of one year. Therefore, it is very important to study these children across a longer time interval. Second, the design of this study accounted for the requirements that three waves of data is the minimum number needed to evaluate trends in the change of problem behavior. However, it is important to note that the measurement of change will be more reliable if more waves of data are collected (Willet, 1989). Third, the relative lack of interaction effects could be due to the generally low reliability of product terms, which will result in reduced power of detecting interaction effects (Jaccard & Wan, 1995).

Fourth, it is important to discuss the generalizability of our findings. The sample selection of referred two-parents families for whom we possessed information from both the child and the parents may have limited the generalizability of our findings. However, since the two-parents families for whom we had complete data did not deviate on important variables (i.e., problem behavior scores, sex, age, level of intelligence, temperament, parental occupational level) from the two-parents families for whom we had missing data, we might cautiously conclude that our findings could be generalized to referred children living with two parents. Moreover, post-hoc analyses on our complete data set revealed that living in a mother-headed family ($n = 33$) in comparison to living in a two-parent family ($n = 112$) had neither an

influence on the initial level of problem behavior nor on the change. This finding is in keeping with the divorce and family systems literature in which it has been demonstrated that family relations are more important correlates of child behavior than family structure per se (e.g., Hess & Camara, 1979). Our results indicated that also in mother-headed families the variables level of intelligence and temperament were related to initial level and stressful life-events on the change of problem behavior, suggesting that our findings could probably also be generalized to referred children from mother-headed families.

The comparison of the referred sample in the present study to a large sample of referred children in the Netherlands indicated that the results of this study could likely be generalized to referred Dutch children. In order to examine whether our results could probably also generalized to referred samples in the United States of America, we compared the level of problem behavior scores in this sample with the levels reported for US referred samples (Achenbach, 1991a, 1991b). These analyses revealed three significant differences, indicating that, in our sample, boys younger than 11 years, had somewhat higher mean CBCL Internalizing scores ($t = 2.34$, $p \leq .05$), girls older than 11 years had somewhat lower mean CBCL Externalizing scores ($t = -3.09$, $p \leq .01$), and boys older than 11 year had somewhat lower mean TRF Externalizing scores. In general, these results indicate that our results could possible also generalized to American referred samples. Nevertheless, since clinical samples are generally biased by diagnostic persistence and comorbidity (Cohen, Cohen, & Brook, 1993) our results could likely only be generalized to referred samples.

Despite the explorative findings and limitations of the present study some important conclusions can be drawn. First, despite the considerable stability of, especially, parent-rated problem behavior also substantial decreases in the level of child problem behavior across a one-year interval were found. Second, while in general the children and adolescents appear to follow the average pattern of decrease in Internalizing closely, the results concerning Total Problems and Externalizing imply that individual trajectories of Total Problems and Externalizing show sizeable variation. Third, the predictive effect of stressful life-events on the change in both parent-rated Total Problems and Externalizing scores underscores its importance as a moderator variable. Fourth, in the last years there has been a call for studying child psychopathology from different informants. The differences which were found between

both parent and teacher ratings could reflect the situational variability of the child's behavior, as well as differences in informant characteristics, and differences in interactions between the informant and the child (Verhulst, Koot, Van der Ende, 1994). Our results indicate that teachers, while apparently not important for the identification of children persisting in Internalizing behavior, can play a significant role in the identification of children at risk for continuing Externalizing behavior at school.

CHAPTER 5

Stability and Change in Family Relations and Associations with Problem Behavior among Referred Children and Adolescents

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Abstract

A *three-wave longitudinal study-design, with two six-months intervals was used to examine the stability and change in family relations among children and adolescents referred to outpatient mental health services. Our results indicated high stabilities for both parent and child ratings of their mutual relationships across a one-year interval. Additionally, we found improvements in the mother-child relationship as perceived by the children. Interindividual differences in change were found for both the mother-child and the father-child relationship, but not for the marital relationship. Although each of the distinguishing family relations was related to the initial level of parent-rated problem behavior, the rate of change in family relations was not associated with the rate of change in child psychopathology.*

Introduction

It is well established that family variables are significant risk factors for child psychopathology (Cohen & Brook, 1987; Hetherington & Martin, 1986; Loeber & Stouthamer-Loeber, 1986; Minuchin, 1974; Patterson, 1982; Rutter, 1971). There is also growing empirical evidence from longitudinal studies that family variables are valuable predictors of both course (Blanz, Schmidt, & Esser, 1991; Hoge, Andrews, & Leschied, 1996; Seifer, Sameroff, Baldwin, & Baldwin, 1992; Van Furth et al., 1996; Windle, 1992) and maintenance of child problem behavior (Asarnow, Goldstein, Tompson, & Guthrie, 1993; Campbell, 1994; Esser, Schmidt, & Woerner, 1990; Fergusson, Lynskey, & Horwood, 1996; Offord et al., 1992; Vuchinich, Bank, & Patterson, 1992). Despite the strong evidence of the importance of family variables in the development of child behavior, several questions remain

to be addressed. First, it is not yet clear how family variables, most notably family relations develop across time. Second, the association between change in family relations and child problem behavior is not fully understood. Accordingly, in order to answer these questions a longitudinal study design is necessary.

Because particularly chronic family discord is considered to be an important risk factor for child psychopathology (Blanz et al., 1991; Fergusson, Horwood, & Lynskey, 1994; Rutter, 1985), there is a great need to understand the extent to which aspects of family functioning are stable or subject to change over time. Since family dysfunctioning is highly prevalent among families of children referred for mental health services (Verhulst & Van der Ende, 1997), this population constitutes a proper focus for the study of the course of family dysfunctioning. As a first step toward understanding the course of family functioning, we examined the short-term stability and change of family relation scores of children and adolescents referred to outpatient mental health services, via standardized parent and child ratings.

Information on the course of family functioning among referred youths is scarce, especially for the younger age groups. Moreover, the few studies on adolescents which have examined changes in family functioning during or after treatment have revealed inconsistent findings. No significant alterations within one year after treatment (Doane & Becker, 1993; Stewart & Brown, 1993), as well as significant improvements over the treatment period (Van Furth et al., 1996; Vostanis & Nicholls, 1995) and two years after treatment (Stewart & Brown, 1993) have been reported. Additionally, the observed ameliorations were not equal across all aspects of family functioning and different for various diagnostic groups of youths. For example, in their study of eating disordered adolescents, Van Furth et al. (1996) found significant decreases of both mothers' and fathers' emotional over-involvement scores, but no changes for critical comments, hostility, warmth, and positive remarks. By contrast, Vostanis and Nicholls (1995) reported significant decreases in maternal critical comments, significant increases for warmth but no changes for emotional over-involvement and positive comments among conduct disordered children nine months after referral. Besides, no significant alterations were found within the emotionally disordered group that was also included in their study. These findings underscore the importance of studying different aspects of family functioning among children and adolescents referred for a wide variety of problem behavior.

The above mentioned studies have focused on either whole family functioning or on the parent-child relationship. One important limitation of focussing on whole family functioning is that important information about subsystems (i.e., mother-child, father-child, and mother-father relationship) may be overlooked when family members report on the entire family. For example, Cole and Jordan (1989), found that family cohesion and adaptability between the different subsystems within a family varied considerably from one dyad to another. When the family as a whole is rated, it is unclear which of the different subsystems is given the most weight by each of the different raters. Moreover, to date the study of changes within the marital relationship has been largely ignored. However, since the marital relationship has consistently been associated with a wide range of problem behavior both cross-sectionally (Davies & Cummings, 1994; Grych & Fincham, 1990) and longitudinally (Katz & Gottman, 1993), information on the course of this specific family relationship among referred children and adolescents should not be neglected.

An important limitation of most studies is that they have focused exclusively on the perception of one family member about his or her relationship with the other. However, in order to get a more elaborated picture of the different mutual relationships within the family, it is essential to study the perceptions of several family members. Therefore, in the present study we examined the stability and change of the mother-child, the father-child, and the mother-father relationship, based on the perceptions of each of the three family members of their mutual relationship. Since in the present study the main reason for referral was determined by the child's behavior, we expected to find more changes in those family relations in which the child is involved than in the marital relationship. Moreover, since mothers as primary caregivers are more involved with their children than fathers are, we expected to find more alterations in the mother-child relationship than in the father-child relationship.

From different theoretical perspectives, such as family systems theory, social learning theory, family stress and role strain theory, and the intergenerational family theory, the reciprocal effects between children and their parents have been stressed (e.g., Boszormeny-Nagy & Sparke, 1973; Margolin, 1981; Minuchin, 1985; Patterson, 1982). This means that, for example, family relations may have a detrimental effect on the child's behavior and

development, whereas reversely, the child's problem behavior may provoke negative family relationships. Consequently, this reciprocal process could lead to maintenance of both negative family relations and child problem behavior. Moreover, it is hypothesized that alterations in family relations are associated with alterations in the child's behavior.

The empirical evidence regarding the hypothesized association between changes in family relations and changes in problem behavior comes particularly from intervention studies. These studies have shown that improvements in the parent-child relationship (e.g., Kazdin, 1987) as well as improvements in the marital relationship (Dadds, Schwartz, & Sanders, 1987; Mann, Borduin, Henggeler, & Blaske, 1990) lead to better treatment outcome for children. Until now, associations between changes in the mother-child, the father-child, and the marital relationship and changes in the child's problem behavior have rarely been studied. The one by Mann et al. (1990) is limited because the results were based on only 45 delinquent adolescents. In the present study, we examined whether changes in mother-child, father-child and mother-father-relationships across a one-year interval among referred children and adolescents were accompanied by changes in the child's problem behavior. Because the child's behavior is assumed to be more directly influenced by the parent-child than by the marital relationship (Belsky, 1984; Patterson, 1982), we expected that changes in parent-child relationships would show stronger associations with changes in child problem behavior than changes in the marital relationship. Moreover, we hypothesized that because mothers as primary caregivers are more involved with their children than fathers are, especially the mother-child dyad would be related to changes in child problem behavior.

In brief, this study has two aims: (1) to assess the stability and change of dyadic family relation scores for referred children and adolescents across half-year and one-year intervals; (2) to examine the linkage between change of family relation scores and change of child problem behavior.

Method

Subjects

The sample was selected from families, referred to one of three Regional Mental Health Agencies (RMHAs) in the greater Rotterdam area, Capelle aan den IJssel, or Delft. To be included in the sample, families and children had to meet the following criteria: children were between 9 and 16 years old; the children were not diagnosed as mentally handicapped or autistic; parents and children had enough command of the Dutch language to complete questionnaires; they were not referred to another institute immediately after intake; the children were the immediate reason for the referral; both parents were informed about the referral; the child had lived for more than half a year in the current family.

Between March 1993 and December 1994, 471 families with children between 9 and 16 years old were referred to one of the three RMHAs, 401 families of which met the criteria for inclusion in our study.

At intake, the purpose of the study was explained to parents by a mental health worker of the RMHA. At the same time parents were asked for participation. However, 57 families were not asked for participation by the mental health worker. For 47.7% of these cases, the mental health worker omitted to introduce the study, and it was not possible to ask for participation later on, because the family had just a single consultation. For 14 families (24.5%) the mental health worker purposely did not introduce the study. Motives mentioned were: resistance against testing, crisis situation, or the study was considered too much of a burden to the family or child.

Of the 344 remaining families, 223 (64.8%) participated in our study. At Time 1 usable reports on the Child Behavior Checklist (CBCL; Achenbach, 1991a) from one or both parents and on the Nijmegen Family Relations Test (NFRT; Oud & Welzen, 1989) from both family members on their mutual relationship were gathered for 207 mother-child dyads, 147 father-child dyads, and 139 mother-father dyads.

Parents and children completed the same questionnaire six months after the first assessment (Time 2) and six months after the second assessment (Time 3). For 159 mother-child dyads (76.8% of the Time 1 sample), 104 father-child dyads (70.7% of the Time 1 sample), and 99 mother-father dyads (71.2% of the Time 1 sample) usable and complete data

for both members of the dyad were obtained at both follow-up assessments.

In order to test whether there was a selective loss of family dyads, we compared the dropouts with the remainers with respect to sex, age, temperament, and level of intelligence of the child, parental occupational and educational level, NFRT scores, and Time 1 CBCL Internalizing and Externalizing scores. These tests revealed only significant differences between the dropouts and remainers in the subsample of mother-child dyads, indicating that older children ($t = 2.32$, $p \leq .05$), children with more Externalizing behavior ($t = 2.06$, $p \leq .05$), and children who scored lower on justice in the relationship with their mothers ($t = -1.97$, $p \leq .05$) were somewhat more likely to drop out from the study.

In total, data were available for 166 families; in 97 families for all three dyads, in 60 families only for the mother-child relationship, in 5 families only for the father-child relationship, in 2 families only for the mother-father relationship, and in 2 families for the mother-child as well as the father-child relationship. These remaining 166 families consisted of 107 boys and 59 girls (mean age = 11.2 years, $SD = 2.2$). Mothers were on average 38.0 years old ($SD = 5.3$) and fathers were on average 41.0 years old ($SD = 5.5$). The mean occupational level of mothers on a 6-point scale (6 = highest; Van Westerlaak, Kropman, & Collaris, 1975) was 2.93 ($SD = 1.13$), and of fathers 3.36 ($SD = 1.56$). Mean parental educational level according to a 7-point scale (7 = highest; Standard Educational Classification, CBS, 1987) was 3.01 ($SD = 1.54$) for mothers, and 3.28 ($SD = 1.80$) for fathers. Of the parents, 71.1% were married, 18.7% were living alone, 7.8% were cohabiting, 2.4% had a partner but were living alone. In 64.5% of the cases, the child was living with both biological parents, 17.5% with the biological mother alone, and 10.2% with the biological mother and partner. The remaining 7.8% was living either with adoptive parents (3.0%), with biological father alone (1.2%), with biological father and partner (1.2%), with foster parents (1.2%), alternately with biological father and mother (0.6%), or with stepmother and partner (0.6%). Main reasons for referral, based on information from the parents, were emotional problems (54.8%), behavior problems at home (39.2%), problems in child-peer relationships (22.3%), school and learning problems (22.3%), behavior problems at school (20.5%), problems in the parent-child relationship (14.4%), sleep and/or eating problems (13.3%), and problems in child-sibling relationships (11.3%). For 131 (78.9%) children, two or three

problems were mentioned.

Procedure

If parents agreed to participate they were contacted by telephone to make further appointments. The assessment session was scheduled at one of the three RMHAs. At the outset of the session, the interviewer explained the procedure and obtained written consent from the parents. The parents were interviewed about demographic characteristics, the reasons for referral, and earlier treatment for mental health problems of the child or other family members. Next parents and children completed the NFRT (Oud & Welzen, 1989), and parents completed the Dutch version of the CBCL (Achenbach, 1991a). The items of the NFRT were read aloud to the children by a research assistant.

Both six months after the first assessment and six months after the second assessment the mental health worker of each family was contacted to inquire whether there were any objections to approach the family for a follow-up. If there were no objections parents were contacted by telephone. If parents agreed to participate a set of questionnaires (including the NFRT, CBCL, and a questionnaire about perceived changes in problem behavior, changes in family functioning, and perceptions about received help) was sent to them and an appointment was made to complete the NFRT with the children. For seven families (3.3%) for whom Time 1 family relation ratings were available the mental health worker refused at Time 2 to give permission to contact the family again. For two of these seven families also at Time 3 the mental health worker refused participation. One of these seven children as well as one of the other children for whom the mental health worker did not refuse participation moved from their biological mother to their biological father.

After six months 56.6% of the parents ($n = 94$) reported that they still received treatment from the RMHA, after a year this had decreased to 34.3% ($n = 57$). Fifty-four families (32.5%) ended the treatment, because the problems were either solved, sufficiently improved or the first consultations were sufficient to go on further without help. Thirty families (18.1%) ended the treatment, because they either did not see the purpose of help, they did not see any improvements of the child's behavior, or they were otherwise not satisfied about the help received. The remaining 25 families were either referred to another agency (7.2%), ended

treatment on the recommendation of the RMHA (6.0%), the reason of stopping was unknown (1.2%), or the family moved to another province (0.6%). The mean number of therapeutic sessions across a one-year interval was 14.4 (range 1-61; $SD = 13.0$).

Measures

Family Relations. The *Nijmegen Family Relations Test* (NFRT; Oud & Welzen, 1989) comprises of 67 5-point items, and is designed to measure the child's perception of his/her relation with other family members. The items are read aloud to the child and the child indicates on a score form the extent to which each item is true for its family members. On basis of the child's version of the NFRT a parent's version was constructed. Only 5 items had wordings that were slightly different from the original child's version. The NFRT operationalizes six relational dimensions. However, for this study we used only four dimensions (restrictiveness, justice, recognition, and trust). *Restrictiveness* (12 items) is the degree to which the respondent experienced that the other family member places demands on him/her (e.g., 'This person expects too much from me'). *Justice* (12 items) refers to the way the balance of giving and taking in the relationship with the other is experienced (e.g., 'Whatever I do, this person is never satisfied by me'). *Recognition* (13 items) expresses the extent the respondent experiences that his or her presence and behavior is appreciated by the other (e.g., 'This person is proud of me'). *Trust* (13 items) is the extent to which the respondent can count on another family member and the extent to which perceptions of the respondent and the other correspond with each other (e.g., 'This person will really help me when I need him/her'). The NFRT has been demonstrated to discriminate well between families of children from 9 to 12 years old (Oud & Welzen, 1989), who were referred to mental health services versus non-referred. Cronbach's alpha computed for each family member averaged across dimensions and time was .81 for child ratings (range .73 - .88), and .79 (range .68 - .87) for mother ratings of the mother-child relationship; .81 for child ratings (range .74 - .88), and .79 (range .63 - .88) for father ratings of the father-child relationship; and .82 (range .71 - .90) for mother ratings, and .80 (range .72 - .88) for father ratings of the mother-father relationship.

Throughout the text the first mentioned family member was always the reporter of the

relationship. For example, mother-child relationship means the relation between mother and child as rated by the mother.

Problem Behavior. *The Child Behavior CheckList 4-18* (CBCL; Achenbach, 1991a) was used to obtain standardized parent reports on children's behavioral/emotional problems. The CBCL contains 120 problem items to which the respondent can answer '0' if the problem item is not true of the child, '1' if the item is somewhat or sometimes true, and '2' if it is very true or often true. By summing 1s and 2s eight syndrome scores (*Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior,* and *Aggressive Behavior*), two broad-band groups of syndrome scores, i.e., *Internalizing* and *Externalizing*, and a *Total Problem* score can be computed. For the present study, only the Total Problem, Internalizing and Externalizing scores were used. The reliability and validity for the Dutch version of the CBCL was demonstrated in several studies (Verhulst & Akkerhuis, 1986; Verhulst, Akkerhuis, & Althaus, 1985; Verhulst, Berden, & Sanders-Woudstra, 1985).

Statistical Analyses

To determine the stability of family relation scores, Pearson product-moment correlations were computed between scores obtained at Time 1 and scores obtained at Time 2 and Time 3, for each dyad, i.e., the mother-child, the father-child, and the mother-father relationship, separately. Also the stability coefficients between Time 2 and Time 3 were computed.

To assess change in the quality of family relations we made use of latent growth modeling (LGM). In general, LGM consists of two stages. At the first stage, the development of family relations over time, as perceived by each of the family members, is represented by individual growth parameters (i.e., the intercept and slope). In LGM it is assumed that the observed status of the quality of family relations at a given time is a function of a constant + systematic growth trajectory + random error (Bryk & Raudenbusch, 1992; Francis, Fletcher, Stuebing, Davidson, & Thompson, 1991; Willet & Sayer, 1994). The intercept (or constant) represents the initial level of the quality of family relations, i.e., the true family relations score at Time 1. The slope describes the average rate of change in the quality of the dyadic family relationship as perceived by each individual and is determined by the repeated measures. At the second

stage the growth parameters (intercept and slope) are allowed to vary across subjects. After having modeled each family dyadic score trajectory, we tested the association between the growth parameters of family relations and the growth parameters of child problem behavior. In order to give an estimate of the model fit both χ^2 and Adjusted Goodness of Fit Indices (AGFI) are presented. Associations between growth parameters were not estimated, in case of either non-significant or negative variances for any of the parameters.

Following the method described by Willet and Sayer (1994) we used covariance structure modeling utilizing LISREL 8 (Jöreskog & Sörbom, 1993).

Results

Descriptive Data

To obtain information on the possible typicality of this referred sample, CBCL Total Problems, Internalizing and Externalizing scores were compared to those obtained for a large sample of consecutive referrals of children of comparable age and sex ($N = 2004$) referred to all RMHAs in the Rotterdam region during an 18-month period (Verhulst, Van der Ende, & Koot, 1996). This comparison showed two significant differences for children younger than 12 years, indicating that both boys ($t = 2.89$, $p \leq .01$) and girls ($t = 2.73$, $p \leq .01$) had somewhat higher mean CBCL Internalizing scores than both boys and girls of the same age in the clinical comparison group.

Stability of Family Relation Scores

The stability coefficients of parent and child ratings of family relations are given in Table 5.1. According to Cohen's (1988) criteria for the magnitude of correlations, both half-year and one-year stabilities for parent ratings were large (all coefficients $\geq .50$). Generally, the stability coefficients for children's ratings were smaller, with a medium half-year stability for restrictiveness in the relationship with mothers and medium one-year stabilities for restrictiveness, recognition, and trust in the relationship with fathers.

Table 5.1
Half-Year and One-Year Stability Coefficients for Family Relation Scores

	T1-T2	T2-T3	T1-T3
Restrictiveness			
Mother-Child[a]	.63	.67	.59
Child-Mother[a]	.47	.68	.50
Father-Child[b]	.68	.76	.66
Child-Father[b]	.54	.68	.47
Mother-Father[c]	.69	.71	.66
Father-Mother[c]	.68	.70	.65
Justice			
Mother-Child	.65	.70	.64
Child-Mother	.62	.69	.62
Father-Child	.71	.74	.66
Child-Father	.68	.71	.51
Mother-Father	.77	.76	.71
Father-Mother	.67	.71	.67
Recognition			
Mother-Child	.68	.79	.66
Child-Mother	.61	.72	.50
Father-Child	.73	.80	.71
Child-Father	.63	.69	.43
Mother-Father	.75	.75	.74
Father-Mother	.68	.65	.68
Trust			
Mother-Child	.63	.76	.56
Child-Mother	.68	.78	.55
Father-Child	.77	.82	.74
Child-Father	.54	.66	.32
Mother-Father	.72	.81	.68
Father-Mother	.67	.72	.70

Note. The first mentioned family member was the reporter of the relationship.
All stability coefficients were significant at $p \leq .01$. [a] : $n = 159$; [b]: $n = 104$; [c] : $n = 99$.

Change of Family Relation Scores

Next, we tried to fit a two-factor model, concerning the intercept and linear slope. First, we modeled the trajectory for each of the different family dyads on each of the family relation scores. The results of these analyses are shown in Table 5.2. The entries in the second and third column describe the mean initial level of family relation scores (intercept) and the mean growth rate (slope) per six months in our sample. The parameter estimates of the mean

intercepts for each of the distinguishing family relations, i.e., the mother-child, the father-child, and the mother-father relationship as perceived by each of the family members concerned in the dyad, and for each of the four different dimensions, i.e., restrictiveness, justice, recognition, and trust were all significantly different from zero. Besides, significant mean slopes were observed for the quality of the child-mother relationship for each of the four dimensions, indicating that children perceived decreases in restrictiveness and increases in justice, recognition as well as in trust. Moreover, for the father-child relationship an increase in restrictiveness was found, whereas for the child-father relationship an increase in justice was reported.

There were highly significant interindividual variations in initial level of family relation scores and growth rate as shown by the fourth and fifth columns. The significant variances of initial level for each of the distinguishing family relation scores indicate that families vary significantly in the quality of relations at the time of referral. Furthermore, the significant variances in growth rates for justice in the father-child and the child-father relationship, and for recognition and trust in the mother-child, the child-mother as well as in the father-child and child-father relationship, indicate that variation between families existed in the development of these family relation scores across a one-year interval.

Finally, significant negative covariances between the initial level of family relation scores and the development of the quality of family relations across time were found for justice in both the father-child and the child-father relationship, for recognition in the child-mother as well as in the child-father relationship and for trust in the child-father relationship, as shown in the sixth column. These negative covariances indicate that family relations with a lower quality at referral tended to improve at a somewhat faster rate than those with a higher quality.

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Table 5.2
Linear Model of Growth in Family Relation Scores

	Parameters										
Family Relations	Mean initial level		Mean growth rate		Initial level		Growth rate		Association between level and growth		χ^2	AGFI
	Variance	SE	Variance	SE	Variance	SE	Variance	SE	Variance	SE	DF=3	
Restrictiveness												
Mother-Child[a]	28.96**	(0.50)	- 0.08	(0.23)	28.94**	(4.62)	1.84	(1.18)	- 2.70	(1.77)	2.44	.98
Child-Mother[a]	34.05**	(0.56)	- 0.70*	(0.29)	27.90**	(5.96)	1.14	(2.08)	1.46	(2.64)	19.38	.91
Father-Child[b]	25.91**	(0.56)	0.72**	(0.24)	25.18**	(4.62)	1.54	(1.02)	- 1.37	(1.59)	3.40	.96
Child-Father[b]	33.82**	(0.72)	- 0.58	(0.39)	35.41**	(7.73)	4.98	(2.58)	- 2.77	(3.41)	6.42	.94
Mother-Father[c]	26.48**	(0.63)	0.44	(0.27)	30.03**	(5.75)	1.85	(1.31)	- 1.69	(2.02)	1.82	.98
Father-Mother[c]	27.78**	(0.63)	0.30	(0.27)	30.01**	(5.70)	1.73	(1.27)	- 2.87	(2.02)	1.94	.98
Justice												
Mother-Child	38.89**	(0.46)	0.08	(0.20)	25.08**	(3.86)	1.16	(0.88)	- 2.29	(1.39)	3.36	.98
Child-Mother	42.05**	(0.55)	0.52*	(0.24)	33.11**	(5.72)	- 0.10	(1.46)	- 0.27	(2.10)	5.91	.95
Father-Child	39.85**	(0.60)	- 0.12	(0.25)	30.30**	(5.26)	2.37*	(1.07)	- 3.89*	(1.81)	7.00	.92
Child-Father	41.33**	(0.71)	0.72*	(0.36)	41.88**	(7.45)	7.09**	(2.07)	- 6.20*	(3.02)	1.21	.99
Mother-Father	43.55**	(0.59)	- 0.23	(0.23)	27.49**	(4.89)	1.39	(0.90)	- 1.26	(1.51)	0.57	.99
Father-Mother	44.72**	(0.59)	- 0.39	(0.24)	25.72**	(4.97)	0.78	(1.06)	- 1.99	(1.71)	2.48	.98
Recognition												
Mother-Child	43.36**	(0.56)	- 0.02	(0.23)	39.33**	(5.60)	2.69*	(1.14)	- 3.68	(1.89)	11.50	.91
Child-Mother	49.17**	(0.60)	1.00**	(0.30)	44.26**	(6.67)	6.13**	(1.84)	- 6.94*	(2.73)	8.06	.94
Father-Child	43.75**	(0.62)	- 0.18	(0.26)	32.92**	(5.70)	2.36*	(1.12)	- 0.92	(1.81)	4.81	.94
Child-Father	47.68**	(0.72)	0.58	(0.41)	43.87**	(8.12)	9.63**	(2.66)	- 7.44*	(3.61)	3.32	.98
Mother-Father	46.28**	(0.68)	- 0.47	(0.26)	34.14**	(6.57)	0.31	(1.31)	1.62	(2.02)	0.60	.99
Father-Mother	47.28**	(0.62)	- 0.27	(0.25)	26.92**	(5.68)	- 0.86	(1.28)	- 0.46	(1.94)	0.57	.99
Trust												
Mother-Child	43.21**	(0.49)	- 0.40	(0.24)	27.96**	(4.37)	3.21**	(1.21)	- 1.20	(1.70)	11.45	.93
Child-Mother	48.00**	(0.60)	0.72*	(0.28)	45.61**	(6.77)	4.89**	(1.66)	- 3.65	(2.50)	22.53	.84
Father-Child	42.37**	(0.66)	- 0.05	(0.25)	38.28**	(6.36)	2.40*	(1.07)	- 3.23	(1.93)	22.64	.80
Child-Father	47.08**	(0.77)	0.36	(0.47)	44.72**	(8.68)	13.59**	(3.45)	- 10.64*	(4.36)	1.87	.98
Mother-Father	49.27**	(0.68)	- 0.34	(0.28)	36.25**	(6.56)	2.46	(1.34)	- 0.81	(2.12)	3.40	.96
Father-Mother	49.20**	(0.67)	0.11	(0.25)	32.80**	(6.51)	- 0.70	(1.31)	- 1.87	(2.11)	4.35	.94

Note. The first mentioned family member was the reporter on the relationship. [a]: $n = 159$; [b]: $n = 104$; [c]: $n = 99$.

Predictive Relations between Initial Level and Change Rate of Family Relation Scores and Problem Behavior

Preliminary analyses demonstrated both significant differences in initial level and interindinvidual changes in rate of Total Problems for the subsamples of mother-child ($t = 7.02, p \leq .01; t = 3.68, p \leq .01$ for initial level and growth rate, respectively) and mother-father dyads ($t = 5.66, p \leq .01; t = 2.25, p \leq .05$ for initial level and growth rate, respectively) and only significant differences in initial level for the subsample of father-child dyads ($t = 5.70, p \leq .01; t = 1.73, p > .05$ for initial level and growth rate, respectively). These results together with the findings presented in Table 5.2 allowed us to examine: (1) the associations between initial level and change of recognition and trust in both the mother-child and the child-mother relationship with initial level and change of Total Problem; (2) the linkages between initial level of family relations and the initial level and change in Total Problems for both the mother-child, the child-mother, the mother-father and the father-mother dyad; (3) the initial level of Total Problems and change in justice, recognition and trust for both the father-child and the child-father dyad. The results of these analyses are shown in Table 5.3. In general, the models concerning both the mother-father and father-mother dyads had reasonably good fit, appearing from the fact that the ratios between the χ^2 and degrees of freedom were smaller than 2 (e.g., Tabachnick & Fidell, 1996). Moreover, the AGFIs were all above .90. Furthermore, reasonably good fit was observed for restrictiveness in the mother-child dyad, justice in both the mother-child and child-mother relationship and recognition in the child-mother dyad. However, the models concerning the father-child and child-father dyad represented less good fit to the data.

Significant associations between initial level of restrictiveness and justice and initial level of Total Problems were found for all family dyads, except for justice in the father-mother relationship, indicating that at the time of intake a high level of restrictiveness and a low level of justice were related to more problem behavior. Moreover, significant negative linkages were observed between recognition in the father-child dyad, and trust in both the mother-child and the father-child relationship and Total Problems, indicating that a low initial level of recognition in the father-child relationship and a low level of trust in the parent-child

Table 5.3
Association between Initial Level and Change of Family Relation Scores (FR) and Problem Behavior (PB)

Family Relations	Initial level FR * Initial level PB Variance	SE	Initial level FR * Change PB Variance	SE	Initial level PB * Change FR Variance	SE	Change FR * Change PB Variance	SE	χ^2	AGFI
Restrictiveness										
Mother-Child[a]	42.56**	(9.18)	-		(-)		(-)		23.99[d]	.94
Child-Mother[a]	31.42**	(10.25)	-		(-)		(-)		36.32[f]	.93
Father-Child[b]	48.19**	(11.67)	(-)		(-)		(-)		71.86[e]	.90
Child-Father[b]	49.98**	(14.18)	(-)		(-)		(-)		63.26[e]	.88
Mother-Father[c]	36.77**	(12.34)	-		(-)		(-)		19.64[d]	.94
Father-Mother[c]	29.55*	(11.66)	-		(-)		(-)		19.55[d]	.94
Justice										
Mother-Child	- 41.86**	(8.50)	-		(-)		(-)		21.65[d]	.94
Child-Mother	- 38.62**	(11.33)	-		(-)		(-)		11.86[d]	.96
Father-Child	- 65.76**	(14.11)	(-)		-		(-)		60.38[d]	.88
Child-Father	- 51.89**	(15.75)	(-)		-		(-)		51.64[d]	.91
Mother-Father	- 39.15**	(11.82)	-		(-)		(-)		23.13[d]	.91
Father-Mother	-		-		(-)		(-)		19.41[d]	.94
Recognition										
Mother-Child	-		-		-		-		24.76[f]	.91
Child-Mother	-		-		-		-		15.76[f]	.94
Father-Child	- 30.40*	(13.39)	(-)		-		(-)		59.60[d]	.88
Child-Father	-		(-)		-		(-)		58.77[d]	.88
Mother-Father	-		-		(-)		(-)		16.14[d]	.95
Father-Mother	-		-		(-)		(-)		4.99[d]	.97
Trust										
Mother-Child	- 22.47*	(9.78)	-		-		-		26.47[f]	.92
Child-Mother	-		-		-		-		32.30[f]	.89
Father-Child	- 56.36**	(14.90)	(-)		-		(-)		85.24[d]	.81
Child-Father	-		(-)		-		(-)		53.66[d]	.90
Mother-Father	-		-		(-)		(-)		25.74[d]	.91
Father-Mother	-		-		(-)		(-)		21.70[d]	.92

Note. The first mentioned family member was the reporter on the relationship. * $p \leq .05$. ** $p \leq .01$. [a]: $n = 159$; [b]: $n = 104$; [c]: $n = 99$; [d]: since the variance of growth rate for this family relationship was either non-significant or negative (see Table 5.2), this variance was not estimated in this analysis, therefore $DF = 16$; [e]: $DF = 20$; [f]: $DF = 11$; (-): this parameter was not estimated.

relationship were associated with more problem behavior.

Significant linkages were neither observed between initial level or change in family relations and change in Total Problems nor between initial level of Total Problems and change in family relations.

To test whether the results obtained for the relation between family relations and Total Problems hold for the broad-band dimensions of Internalizing and Externalizing behavior, the analyses reported in Table 5.3 were repeated for Internalizing and Externalizing problems. Significant differences in initial level of Internalizing and Externalizing behavior were found for all three subsamples, i.e., for the mother-child ($t = 6.73, p \leq .01; t = 7.59, p \leq .01$ for Internalizing and Externalizing, respectively), the father-child ($t = 5.03, p \leq .01; t = 6.17, p \leq .01$ for Internalizing and Externalizing, respectively), and the mother-father dyads ($t = 5.11, p \leq .01; t = 6.13, p \leq .01$ for Internalizing and Externalizing, respectively). Significant interindividual differences in rate of change were observed for Internalizing only in the subsample of mother-child dyads ($t = 3.22, p \leq .01$) and for Externalizing behavior in both the subsamples of the mother-child ($t = 3.64, p \leq .01$) and the mother-father dyads ($t = 2.48, p \leq .05$).

The analyses regarding the associations between initial level and change of family relations and initial level and change of Internalizing and Externalizing behavior yielded exactly the same results as for Total Problems, except for the following. Contrary to Total Problems we did not find significant associations between initial levels of restrictiveness in the father-mother relationship, justice in the child-mother relationship, and trust in the mother-child relationship and initial levels of Internalizing behavior ($t = 1.33, p > .05; t = -1.84, p > .05; t = -1.00, p > .05$ for the father-mother, the child-mother and the mother-child relationship, respectively), but we did find significant relations between initial levels of justice in the father-mother dyad and recognition in the mother-child dyad and initial levels of Externalizing behavior ($t = -2.43, p \leq .05; t = -2.45, p \leq .05$ for the father-mother and the mother-child relationship, respectively).

Discussion

The first purpose of this study was to examine the half-year and one-year stability and change of family relations in a sample of children and adolescents referred for mental health services. Our results indicated medium to large stabilities for each of the three relationships, i.e., the mother-child, father-child, and mother-father relationship, and for each of the four dimensions, i.e., restrictiveness, justice, recognition, and trust. On average, the stability coefficients for child ratings were somewhat lower than for parent ratings.

As expected, more changes in the parent-child versus the marital relationship were found. Possibly, across the one-year interval, parents have learned to deal with the problem behavior of the child, resulting in less strain in the parent-child relationship with their children. Moreover, as expected, we found more positive changes for the child-mother than for the child-father relationship. Likely, children will perceive changes in the relationship with mothers sooner than changes in the relationship with fathers, because mothers as primary caregivers are more involved with their children than fathers are. In reality, changes in the mother-child relationship may also occur sooner. However, it is important to note that this finding only accounts for child ratings and not for mother ratings.

Whereas we did not find significant improvements for mother ratings, across a one-year interval fathers reported a significant increase in restrictiveness in the relation with their children, indicating that fathers experience that the child increasingly places demands on them. Although, this finding may suggest that fathers experience a worsening of their relationship with the child it is also possible that by realizing that the child has problems, the father has become more involved with the child, leading to an increase in relationship problems. Further inspection of the answers given by fathers on the items used to measure the dimension restrictiveness demonstrated an increase on all items. However, the strongest increase was found for the item 'I am afraid to do something wrong when this person is with me', suggesting that fathers have become more aware of the influence on their children.

Conceivably, the lack of alterations in the quality of the marital relationship across a one-year interval could be explained by the fact that changes occur mostly in the early phase of the marriage (e.g., Kurdek, 1991). Since the couples in our study were on average married for 16.4 years (SD = 5.7; range 1.1 - 29.1 years), their relationship has probably been stabilized

and is less likely to change across a relatively short time interval.

Besides interindividual differences in rate of change were observed for justice in the father-child dyad as perceived by both the father and child, and for recognition as well as for trust in both the mother-child and the father-child relationship, as reported by both mothers, fathers and children. These findings indicate significant variation in change of the quality of family relationships, implying that some families will do worse or remain the same whereas others will improve across a one-year interval.

The second purpose of our study was to examine the association between change of family relation scores and change of child problem behavior. Despite the observed significant variations in the rate of change of family relationships, these differences in change were not associated with the interindividual differences in change of problem behavior. Our results suggest that changes in the quality of family relations are not dependent on changes in the child's behavior. Would this be the case, than we would have found more ameliorations in family relations cooccurring with the improvement of problem behavior. However, although from a family systems perspective it has been suggested that changes in one family member are followed by changes in other elements of the family system, such as mutual relationships, it is not impossible that these changes will not follow directly. Probably, a family needs time to adapt to changes in the child's behavior. This suggestion is supported by the findings of Stewart and Brown (1993). In their study of adolescent substance abusers, they did not find one-year follow-up differences in family relations between adolescents who improved and adolescents who relapsed, whereas two years after treatment families of improvers showed significant ameliorations in family relationships.

Interestingly, notably for the child-parent relationship significant linkages between initial level and change of family relation scores were observed. This means that initially more negative family relationships will improve at a somewhat faster rate than more positive family relationships. This finding is in accordance with the results of Keitner et al. (1995), who in their study on depressed adults observed that improvements in family functioning over a one-year interval after hospitalization were especially found among families that initially reported themselves as poorly functioning. Because we used latent growth modeling, this finding cannot be attributed to measurement error or to the phenomenon of regression to the mean.

Several implications emerge from our results. First, although several studies have shown that family variables are related to child psychopathology (e.g., Dadds, 1995; Hetherington & Martin, 1986; Loeber & Stouthamer-Loeber, 1986), our results clearly demonstrated that not all aspects of family relationships are equally associated with child problem behavior. Generally, stronger linkages were found for restrictiveness and justice. Besides more associations were found for the parent-child relationship than for the marital relationship. These findings suggest that aspects of the marital relationship which may be reflective of conflicts between the parents, i.e., restrictiveness and justice, are more strongly linked to the child's problem behavior than general feelings of satisfaction with the marital relationship, i.e., recognition and trust. Therefore, in order to get a more comprehensive understanding of the linkage between family relationships and child problem behavior it is essential to study different dimensions of family relations.

Second, despite the cross-sectional associations between family relations and problem behavior, no significant associations were observed between change rates in family relations and change rates in problem behavior across a one-year interval. Our results evidently suggest that changes in problem behavior in a certain child are not paralleled by alterations in relations in his or her family, at least not in family relations as we have measured them in the present study. A possible explanation for this lack of linkages may be that the individuals' perceptions of the quality of family relationships as assessed in this study are not easily influenced by obvious ameliorations in child problem behavior, or the reverse. Maybe, more actual interactions between family members are more subject to change over a relatively short time interval, whereas the more global aspects of the quality of relationships measured in this study may reflect the outcome of these interactions only in the long run. Other than is the case with problem behavior changes in family relationships seems to develop only slowly. In order to examine this hypothesis we should study the present sample across a longer time interval.

Although our results could imply that changing family relations is not a viable option for interventions aimed at changing child problem behavior, this suggestion would be premature. First, it is important to note that this was not an intervention study and possible treatment was neither systematically assessed nor controlled for. Second, the combination of the findings that: (1) the child's judgement of restrictiveness and justice in the relationship with mother

becomes more positive across a one-year interval; (2) child problem behavior decreases across the same time interval; and (3) restrictiveness and justice and problem behavior are relatively strongly associated, suggest that changes in the child-mother relationship will at least partly be associated with changes in child problem behavior. Using latent growth analyses we were only able to examine whether interindividual differences in growth rates in both family relations and child problem behavior were associated with each other. Since we did not observe interindividual differences in the rate of change for restrictiveness and justice in the child-mother relationship we may conclude that the rate of change in problem behavior is not dependent on the rate of change in the child-mother relationship. Our results seem to indicate that, at least in the short run, no differences exist in the extent of increases in the child-mother relationship. Possibly, these differences appear only in the long term.

In sum, three important conclusions can be drawn from the present study. First, family relations among referred children and adolescents are highly stable across a one-year interval, particularly for parent ratings. Second, ameliorations in parent-rated child problem behavior are not associated with improvements in parent ratings of their relationship with the child, indicating that despite the relatively strong linkages between the parent-child relationship and child problem behavior both variables have their own unique developmental course. Third, unlike mothers, children report ameliorations in their mutual relationship on all points, suggesting that important changes have taken place in the year after referral. This finding indicates that both in research and in clinical practice we should not only rely on parents' perceptions but also take into account children's judgements of their relationship with mother and father.

CHAPTER 6

Family Relations and Problem Behavior in

Referred Children and Adolescents:

A Cross-Lagged Panel Study

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Abstract

A three-wave longitudinal study-design, with two six-months intervals was used to examine the linkages between the mother-child, father-child, and mother-father relationship and internalizing and externalizing problem behavior in a sample of referred children and adolescents. Structural equation models with latent variables were used to estimate the reciprocal effects between family relations and child problem behavior. Our results indicated high stability for family relations and problem behavior, and more associations with family relations for internalizing than for externalizing behavior. Both effects of family relations on internalizing behavior and vice versa were found, whereas for externalizing behavior only effects from the child's behavior to family relations were observed. Interestingly a cross-lagged effect was found for internalizing as well as externalizing behavior on the marital relationship. Moreover, a larger number of cross-sectional relations in comparison with longitudinal cross-lagged relations were observed, suggesting that the prediction of effects is more accurate when both data on family relations and on child problem behavior are obtained closer in time.

Introduction

Despite convincing evidence that both the parent-child relationship and the marital relationship are associated with child and adolescent psychopathology (e.g., Davies & Cummings, 1994; Emery, 1982; Grych & Fincham, 1990; Loeber & Stouthamer-Loeber, 1986; Rothbaum & Weisz, 1994), the nature and direction of these associations is not fully

understood. Different theoretical lines, such as family systems theory, social learning theory, and family stress and role strain theory assume bidirectional causality between family relations and child psychopathology (Dadds, 1995; Margolin, 1981; P. Minuchin, 1985; S. Minuchin, 1974; Patterson, 1982), i.e., the association could best be described as a spiral in which the child's behavior both influences and is influenced by family relations. Consequently, in order to understand the linkage between family relations and child problem behavior longitudinal studies are indispensable in which bidirectional pathways of influence are examined.

However, up to now these reciprocal associations have rarely been the focus of empirical studies. Moreover, as far as we know, in contrast to the reciprocal linkage between family relations and the child's externalizing behavior (Cohen & Brook, 1995; Stice & Barrera, 1995; Vuchinic, Bank and Patterson, 1992), the comparable association has even not yet been investigated in the case of internalizing problems. Besides, the few longitudinal studies which have examined these bidirectional influences have focused only on the mother-child relationship or, more generally on the parent-child relationship without regard of other family relationships. As a consequence, these studies have been insensitive for the possible differential effects of the different relationships within a family. Therefore, in the present study we examined the effects of the mother-child, the father-child, as well as the marital relationship on both externalizing and internalizing behavior over a one-year interval. More specifically, by using three waves of longitudinal data we assessed the stability of both family relations and child problem behavior, and cross-sectional effects, i.e., influences within time as well as cross-lagged effects, i.e., the cross-time influence of family relations on child problem behavior and vice versa. Moreover, we studied these effects in a clinical sample, i.e., children and adolescents who were referred for emotional and/or behavioral problems to an outpatient mental health agency. Consequently our results could conceivably have important implications for intervention purposes.

The relatively strong emphasis on reciprocal associations between the parent-child relationship and externalizing behavior is probably due to the fact that theoretically this linkage is described more detailed than mutual linkages between the parent-child relationship and internalizing behavior. Especially, Patterson's coercion theory (1982) has stressed the

importance of reciprocal effects between the parent-child relation and the child's externalizing behavior. According to this theory, parents and children, who have learned to control each other's behavior by exchanging high rates of aversive responses, could become enmeshed in a spiral of mutually coercive interactions. To date, the few longitudinal studies on nonclinical samples which have examined these relations have revealed inconsistent findings with support for reciprocal influences between the parent-child relation and externalizing behavior (Cohen & Brook, 1995), only unidirectional effects from the child's behavior to the parent-child relationship (Stice & Barrera, 1995), and no reciprocal effects (Vuchinic, Bank and Patterson, 1992). Guided by Patterson's hypothesized reciprocal theory we examined the mutual associations between the parent-child relationship and externalizing behavior across 6-months intervals in a sample of referred children and adolescents, using both mothers', fathers', and children's reports of their mutual relationship.

Interpersonal theories of depression offer starting-points to study also the reciprocal associations between family relations and internalizing behavior. These theories posit that psychological distress of an individual can both affect and be affected by relations with family members (e.g., Downey & Coyne, 1990). Studies of both adults and adolescents have shown that psychological distress of individual family members can have negative consequences, in terms of more distress, for their family members (e.g., Compas, Howell, Phares, Williams, & Giunta, 1989; Coyne et al., 1987). Although empirical evidence exists for a reciprocal association between parent and adolescent psychological distress (Ge, Conger, Lorenz, Shanahan, & Elder, 1995), it is not yet clear whether the child's or adolescent's internalizing behavior is not only reciprocally associated with distress in other individual family members but also with the quality of relations between different family members. Therefore, in the present study we examined whether internalizing behavior of the child is reciprocally related to family relations across 6-months intervals.

Generally, the association between the marital relationship and child psychopathology is typically seen as unidirectional, i.e., the child's behavior is believed to be affected by the marital relationship (e.g., Fincham et al, 1994; Katz & Gottman, 1993; Margolin, 1981). Several hypotheses have been offered which could possibly explain the effects of the marital relationship on the child's behavior, including (1) modeling, i.e., the child will imitate the

behavior parents display to each other, (2) a mediating effect of the parent-child relationship, i.e., the marital relationship is assumed to influence the parent-child relationship which on its turn will influence the child's behavior, and (3) the conceptualization of marital conflicts as a stressor, which elicits child problem behavior (e.g., Davies & Cummings, 1994; Emery, 1982; Grych & Fincham, 1990; Harold, Fincham, Osborne, & Conger, 1997).

However, theoretically also an effect of the child's behavior on the marital relationship may be assumed. For example, based on a family systems perspective in which it is assumed that the family is a system of interdependent individuals (e.g., Belsky, 1981; Minuchin, 1985), we may formulate the hypothesis that the child's behavior both affects and is affected by the marital relationship. Furthermore, especially family sociologists have stressed the possibility of bidirectional influences between children's problem behavior and the marital relationship, i.e., it is presumed that both problems in the child and in the marital relationship can function as a stressor, in which the child's behavior will negatively influence the marital dyad, and the marital dyad will negatively affect the child's behavior (Margolin, 1981). Up to now this bidirectional hypothesis lacks supporting data. Hence, in the present study we examined the reciprocal association between the child's behavior and the marital relationship.

In summary, in the present study we build on the research of others who studied the longitudinal associations between the mother-child relationship and externalizing problems and extend it by including internalizing behavior and both the father-child and the marital relationship. More particularly, we examined the associations among latent variables instead of measured variables which has the advantage of providing more precise estimates of 'true' relationships. Furthermore, in an attempt to replicate the findings across raters, we used the reports of both mothers, fathers, and children regarding their mutual relationship.

Method

Subjects

The sample was selected from families, referred to one of three Regional Mental Health Agencies (RMHAs) in Rotterdam and two neighbouring towns. To be included in the sample, families and children had to meet the following criteria: children were between 9 and 16 years old; the children were not diagnosed as mentally handicapped or autistic; parents and children

had enough command of the Dutch language to complete questionnaires; they were not referred to another institute immediately after intake; the children were the immediate reason for the referral; both parents were informed about the referral; the child had lived for more than half a year in the current family.

Between March 1993 and December 1994, 471 families with children between 9 and 16 years old were referred to one of the three RMHAs, 401 families of them met the criteria for inclusion in our study.

At intake, the purpose of the study was explained to parents by a mental health worker of the RMHA and parents were asked for participation. However, 57 families were not asked for participation by the mental health worker. For 47.7% of these cases, the mental health worker omitted to introduce the study, and it was not possible to ask for participation later on, because the family had just a single consultation. For only 14 of the remaining 30 families (24.5%) the mental health worker purposely did not introduce the study. Motives mentioned were: resistance against testing, crisis situation, or the study was considered too much of a burden to the family or child.

Of the 344 remaining families, 223 (64.8%) participated in our study. At Time 1 usable reports on the Child Behavior Checklist (CBCL; Achenbach, 1991a) from one or both parents and on the Nijmegen Family Relations Test (NFRT; Oud & Welzen, 1989) from both family members on their mutual relationship were gathered for 207 mother-child dyads, 147 father-child dyads and 139 mother-father dyads.

Parents and children completed the same questionnaire six months after the first assessment (Time 2) and six months after the second assessment (Time 3). For 159 mother-child dyads (76.8% of the Time 1 sample), 104 father-child dyads (70.7% of the Time 1 sample), and 99 mother-father dyads (71.2% of the Time 1 sample) usable and complete data for both members of the dyad were obtained at both follow-up assessments.

In order to test whether there was a selective loss of family dyads, we compared the dropouts with the remainers with respect to sex, age, temperament, and level of intelligence of the child, parental occupational and educational level, NFRT scores, and Time 1 CBCL Internalizing and Externalizing scores. These tests revealed only significant differences between the dropouts and remainers in the subsample of mother-child dyads, indicating that

older children ($t = 2.32$, $p \leq .05$), children with more Externalizing behavior ($t = 2.06$, $p \leq .05$), and children who scored lower on justice in the relationship with their mothers ($t = -1.97$, $p \leq .05$) were somewhat more likely to drop out from the study.

In total, data were available for 166 families; in 97 families for all three dyads, in 60 families only for the mother-child relationship, in 5 families only for the father-child relationship, in 2 families only for the mother-father relationship, and in 2 families for the mother-child as well as the father-child relationship. These remaining 166 families consisted of 107 boys and 59 girls (mean age = 11.2 years, SD = 2.2). Mothers were on average 38.0 years old (SD = 5.3) and fathers were on average 41.0 years old (SD = 5.5). The mean occupational level of mothers on a 6-point scale (6 = highest; Van Westerlaak, Kropman, & Collaris, 1975) was 2.93 (SD = 1.13), and of fathers 3.36 (SD = 1.56). Mean parental educational level according to a 7-point scale (7 = highest; Standard Educational Classification, CBS, 1987) was 3.01 (SD = 1.54) for mothers, and 3.28 (SD = 1.80) for fathers. Of the parents, 71.1% were married, 18.7% were living alone, 7.8% were cohabiting, 2.4% had a partner but were living alone. In 64.5% of the cases, the child was living with both biological parents, 17.5% with the biological mother alone, and 10.2% with the biological mother and partner. The remaining 7.8% were living either with adoptive parents (3.0%), with biological father alone (1.2%), with biological father and partner (1.2%), with foster parents (1.2%), alternately with biological father and mother (0.6%), or with stepmother and partner (0.6%). Main reasons for referral, based on information from the parents, were emotional problems (54.8%), behavior problems at home (39.2%), problems in child-peer relationships (22.3%), school and learning problems (22.3%), behavior problems at school (20.5%), problems in the parent-child relationship (14.4%), sleep and/or eating problems (13.3%), and problems in child-sibling relationships (11.3%). For 131 (78.9%) children, two or three problems were mentioned.

Procedure

If parents agreed to participate they were contacted by telephone to make further appointments. The assessment session was scheduled at one of the three RMHAs. At the outset of the session, the interviewer explained the procedure and obtained written consent

from the parents. The parents were interviewed about demographic characteristics, the reasons for referral, and earlier treatment for mental health problems of the child or other family members. Next parents and children completed the NFRT (Oud & Welzen, 1989), and parents completed the Dutch version of the CBCL (Achenbach, 1991a). The items of the NFRT were read aloud to the children by a research assistant.

Both six months after the first assessment and six months after the second assessment the mental health worker of each family was contacted to inquire whether there were any objections to approach the family for a follow-up. If there were no objections parents were contacted by telephone. If parents agreed to participate a set of questionnaires (including the NFRT, CBCL, and a questionnaire about perceived changes in problem behavior, changes in family functioning, and perceptions about received help) was sent to them and an appointment was made to complete the NFRT with the children. For seven families (3.3%) for whom Time 1 family relation ratings were available the mental health worker refused at Time 2 to give permission to contact the family again. For two of these seven families also at Time 3 the mental health worker refused participation. One of these seven children as well as one of the other children for whom the mental health worker did not refuse participation moved from their biological mother to their biological father.

After six months 57.2% of the parents ($n = 95$) reported that they still received treatment from the RMHA, after a year this had decreased to 34.9% ($n = 58$). Fifty-five families (33.1%) ended the treatment, because the problems were either solved, sufficiently improved or the first consultations were sufficient to go on further without help. Thirty-nine families (23.5%) ended the treatment, because they either did not see the purpose of help, they did not see any improvements of the child's behavior, or they were otherwise not satisfied about the help received. The remaining 14 families (8.4%) were referred to another agency, 10 of them were still in treatment, 1 of them completed the treatment and 3 of them dropped out. In sum, one year after referral 68 families were still in treatment (41.0%), 56 families completed the treatment (33.7%), and 42 families dropped out (25.3%). The mean number of therapeutic sessions across a one-year interval was 14.4 (range 1-61; $SD = 13.0$).

Measures

Family Relations. Four subscales (restrictiveness, justice, recognition, and trust) of the *Nijmegen Family Relations Test* (NFRT; Oud & Welzen, 1989) were used to estimate a latent family relation score. Originally, the NFRT was designed to measure the child's perception of his/her relation with other family members. The 5-point items are read aloud to the child and the child indicates on a score form the extent to which each item is true for its family members. On basis of the child's version of the NFRT a parent's version was constructed. *Restrictiveness* (12 items) is the degree to which the respondent experiences that the other family member places demands on him/her (e.g., 'This person expects too much from me'). *Justice* (12 items) refers to the way the balance of giving and taking in the relationship with the other is experienced (e.g., 'Whatever I do, this person is never satisfied by me'). *Recognition* (13 items) expresses the extent to which the respondent experiences that his or her presence and behavior is appreciated by the other (e.g., 'This person is proud of me'). *Trust* (13 items) is the extent to which the respondent can count on another family member and the extent to which perceptions of the respondent and the other correspond with each other (e.g., 'This person will really help me when I need him/her'). Throughout the text the first mentioned family member was always the reporter of the relationship. For example, mother-child relationship means the relation between mother and child as rated by the mother.

The NFRT has been demonstrated to discriminate between families of children from 9 to 12 years old (Oud & Welzen, 1989), who were referred to mental health services versus non-referred. Cronbach's alpha computed for each family member averaged across dimensions and time was .81 for the child-mother (range .73 - .88), and .79 (range .68 - .87) for the mother-child relationship; .81 for the child-father (range .74 - .88), and .79 (range .63 - .88) for the father-child relationship; and .82 (range .71 - .90) for the mother-father, and .80 (range .72 - .88) for the father-mother relationship. Each of the four dimensions were used to estimate one latent 'family relations' variable for each family member's rating of his or her dyadic relationship with another family member, yielding six different latent family relations.

Problem Behavior. *The Child Behavior Checklist 4-18* (CBCL; Achenbach, 1991a) was used to obtain standardized parent reports on children's behavioral/emotional problems. The CBCL contains 120 problem items to which the respondent can answer '0' if the problem

item is not true of the child, '1' if the item is somewhat or sometimes true, and '2' if it is very true or often true. By summing 1s and 2s eight syndrome scores (*Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior*, and *Aggressive Behavior*), two broad-band groups of syndrome scores, i.e., *Internalizing* and *Externalizing*, and a *Total Problem* score can be computed. The Internalizing group consists of the Anxious/Depressed, Somatic Complaints, and Withdrawn syndromes. The Externalizing group consists of the Aggressive and Delinquent Behavior syndromes. The reliability and validity for the Dutch version of the CBCL was demonstrated in several studies (Verhulst & Akkerhuis, 1986; Verhulst, Akkerhuis, & Althaus, 1985; Verhulst, Berden, & Sanders-Woudstra, 1985).

For the present study, the scores on the syndromes Withdrawn, Anxious/Depressed, and Somatic Complaints were used to estimate the latent variable 'internalizing'. The syndromes Delinquent Behavior and Aggressive Behavior were used to estimate the latent variable 'externalizing'.

Analytic Strategy

To test the direction of the effects between family relations and child problem behavior we used covariance structural modeling, by means of the LISREL 8 program (Jöreskog & Sörbom, 1993). Two different models were evaluated, i.e., a cross-sectional stability model (Figure 6.1) and a cross-lagged stability model (Figure 6.2). In the cross-sectional stability model Time 1 → Time 2 → Time 3 stability paths are included, and it also allows Time 2 and Time 3 variables to influence each other. The difference between this model and the cross-lagged stability model is that the latter allows Time 1 and Time 2 variables to influence Time 2 and Time 3 variables, respectively. Besides, in the cross-lagged stability model the errors of the latent variables family relations and child problem behavior at Time 2 and Time 3 were allowed to correlate. Both models were separately tested for the mother-child, the father-child, the father-mother relationship and both internalizing and externalizing behavior. In an attempt to replicate the results across raters, the analyses were conducted using the perceptions of both parents and children on their mutual relationship. In total, 24 models were estimated.

Figure 6.1

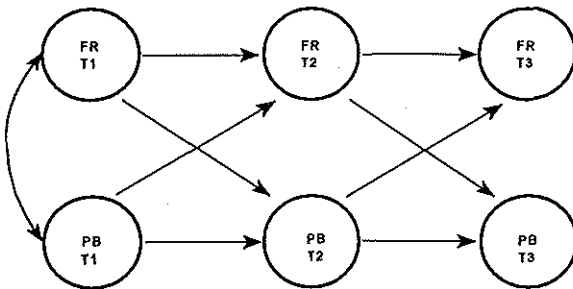**General Cross-Sectional Stability Model**
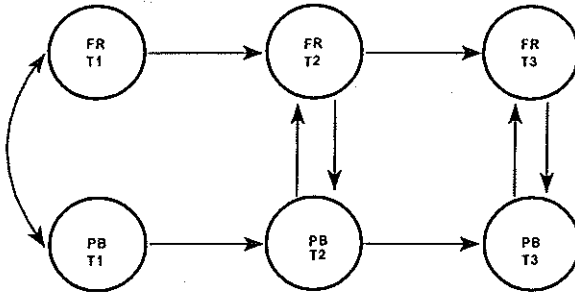
Note. FR = Family Relations; PB = Problem Behavior; T1 = Time 1; T2 = Time 2; T3 = Time 3. Circles indicate latent variables. Both variables are allowed to freely correlate at Time 1, in addition simultaneous effects between both variables at Time 2 and at Time 3 are assessed.

Using latent variables provides the possibility to control for measurement errors, which has the advantage of obtaining more pure estimates of the effects between variables. In the present study, the Time 1 variables were exogenous and therefore they were allowed to freely correlate. Moreover, since the indicators used to assess the latent variables were measured with the same questionnaire, i.e., the NFRT for family relations and the CBCL for child problem behavior, we assumed that the measurement error variances of the indicators for each latent variable were equal within each time. Finally, since repeated measurement of the same variable may result in correlated measurement errors, the measurement errors of each indicator of the latent variables were also allowed to correlate across time. For example, the

measurement error of Aggressive was allowed to correlate between Time 1 and Time 2, between Time 2 and Time 3, and between Time 1 and Time 3.

Figure 6.2

General Cross-Lagged Stability Model

Note. FR = Family Relations; PB = Problem Behavior; T1 = Time 1; T2 = Time 2; T3 = Time 3. Circles indicate latent variables. Both variables are allowed to freely correlate at Time 1, in addition cross-lagged effects of Time 1 to Time 2 variables and of Time 2 to Time 3 variables are assessed.

Results

Descriptive Data

    To obtain information on the possible typicality of this referred sample, CBCL Total Problem, Internalizing, and Externalizing scores were compared to those obtained for a large sample of consecutive referrals of children of comparable age and sex (N = 2004) referred to

all RMHAs in the Rotterdam region during an 18 month-period (Verhulst, Van der Ende, & Koot, 1996). These comparisons showed two significant differences for children younger than 12 years, indicating that both boys ($t = 2.89$, $p \leq .01$) and girls ($t = 2.73$, $p \leq .01$) had somewhat higher mean CBCL Internalizing scores than boys and girls of the same age in the comparison group.

Structural Equation Modeling

Structural Equation Models (SEM) consist of two basic models: the measurement model and the structural model. The measurement model concerns the relations between observed and latent variables. The structural model delineates the associations between the latent variables.

Evaluation of the measurement model indicated a two-factor model for both the child-mother and the child-father relationship, and a one-factor model for the mother-child, the father-child and the marital relationship. For children, the variables restrictiveness and justice loaded on one factor, whereas the variables recognition and trust loaded on the other factor. In order to be able to compare the results of the different models for child-rated and parent-rated relationships estimated in the present study, we decided to use only the dimensions restrictiveness and justice for each latent family dyad, i.e., the mother-child, the child-mother, the father-child, the child-father, the mother-father and the father-mother dyad. Averaged loadings across three measurements for restrictiveness were -.86 for both the child-mother and the mother-child relationship, -.87 for the child-father and -.83 for the father-child relationship, and -.89 for the mother-father and -.88 for the father-mother relationship. Averaged loadings across three measurements for justice were .84 for the child-mother and .82 for the mother-child relationship, .85 for the child-father and .83 for the father-child relationship, and .87 for the mother-father and .86 for the father-mother relationship. The negative loadings of restrictiveness and the positive loadings of justice indicate that a high score on family relations represents a positive relationship.

Although our measurement model demonstrated that Somatic Complaints loaded less consistently on the latent construct internalizing (averaged loading across three measurements = .47) than Withdrawn (average loading = .76) and Anxious/Depressed (averaged loading =

.91) we decided not to remove the syndrome Somatic Complaints from our analyses. First, despite its relatively low reliability the loading on the latent construct was significant. Second, the syndrome loaded consistently across the three measurements on internalizing. Third, the inclusion of Somatic Complaints enhances the comparison of our construct internalizing with the construct as assessed in the CBCL.

Both Delinquent Behavior and Aggressive Behavior were reliable indicators of the latent construct Externalizing, with stronger loadings for Aggressive Behavior (averaged loading across three measurements = .94) than for Delinquent Behavior (averaged loading across three measurements = .63).

Cross-Sectional Stability Model

Since by estimating both concurrent and cross-lagged effects the model may not be identified (e.g., Kohn & Schooler, 1978; Vuchinic et al., 1992), we tested the cross-sectional and cross-lagged stability models separately.

The standardized parameter estimates of the structural model presented in Figure 6.1 are shown in Tables 6.1 and 6.2. The stability coefficients for each of the family dyads as well as for internalizing and externalizing were highly significant. On average the stability coefficients for the child-mother and the child-father relationship were somewhat lower than the stability coefficients for the relationships as perceived by the parents. Furthermore, the stability for internalizing was on average slightly lower than for externalizing.

Significant cross-sectional effects appeared for the mother-child relationship on internalizing behavior assessed at Time 2 ($\beta = -.18$, $p \leq .05$), whereas Time 3 internalizing had a cross-sectional influence on the mother-child relationship ($\beta = -.14$, $p \leq .05$). Besides, both the Time 3 father-child relationship, ($\beta = -.21$, $p \leq .05$) and the child-father relationship ($\beta = -.21$, $p \leq .05$) had an effect on internalizing. Moreover, Time 3 internalizing had an influence on the father-mother relationship ($\beta = -.16$, $p \leq .05$). These results indicate effects of internalizing on family relations as well as vice versa. Finally, the child's externalizing behavior at Time 3 had an effect on both the mother-child relationship ($\beta = -.18$, $p \leq .05$), and on the father-mother relationship ($\beta = -.23$, $p \leq .01$).

Besides these direct effects, significant indirect effects (not shown in the Table) were

observed for the Time 1 mother-child relationship on both Time 2 ($\beta = -.15, p \leq .05$) and Time 3 ($\beta = -.18, p \leq .05$) internalizing, and for the Time 1 father-child and child-father relationship on Time 3 internalizing ($\beta = -.26, p \leq .01; \beta = -.20, p \leq .05$ for father and child ratings, respectively). These results indicate that the influence of the parent-child relationship at intake on internalizing behavior one year later is mediated by Time 2 family relations and internalizing behavior. Besides, significant indirect effects were found for Time 1 externalizing on Time 3 mother-child relationship ($\beta = -.21, p \leq .01$), and for Time 1 externalizing on both father-child ($\beta = -.20, p \leq .05$) and father-mother relationship ($\beta = -.19, p \leq .05$), indicating that a similar mediating role was played by Time 2 family relations and externalizing.

Examination of the associations between Time 1 exogenous variables, i.e., family relations and both internalizing and externalizing behavior, revealed small to medium correlations for internalizing (median = -.27) and small to high correlations for externalizing (median = -.33), with the greatest associations found for parent ratings of their relationship with the child.

The percentage of variance accounted for in the latent constructs assessed at Time 2 and Time 3 ranged from 44% (child-mother dyad) to 81% (father-child dyad) for family relationships, from 44% (Time 2) to 62% (Time 3) for internalizing, and from 62% (Time 2) to 81% (Time 3) for externalizing.

Measures of model fit (χ^2, Adjusted Goodness of Fit Index (AGFI), and the Root Mean Square Residual (RMSR) are also given in Table 6.1 and Table 6.2. One very rough rule is that a good fitting model may be indicated when the ratio of χ^2 to the degrees of freedom is less than 2 (e.g., Tabachnick & Fidell, 1996). Based on this rule all models fit reasonably well to the data. Moreover, the RMSRs also indicate reasonably good fit (all smaller than .10). However, the AGFIs for the estimated models were, except for the model including child ratings of the mother-child relationship and externalizing behavior, all lower than .90, indicating a marginal fit.

Table 6.1
Standardized Estimates of the Structural Coefficients for Each Family Dyad: Cross-Sectional Stability Model Predicting Internalizing Behavior

Structural parameters	Estimated Models					
	Mother-child (n = 159)	Child-mother (n = 159)	Father-child (n = 104)	Child-father (n = 104)	Mother-father (n = 99)	Father-mother (n = 99)
Stability coefficients						
Family relations T1 to T2 (β)	.82**	.66**	.84**	.68**	.83**	.85**
Family relations T2 to T3 (β)	.82**	.80**	.85**	.81**	.83**	.83**
Internalizing T1 to T2 (β)	.62**	.67**	.60**	.61**	.68**	.71**
Internalizing T2 to T3 (β)	.73**	.76**	.64**	.67**	.75**	.77**
Cross-sectional coefficients						
Family relations T2 to internalizing T2 (β)	- .18*	.02	- .19	- .17	- .09	.02
Internalizing T2 to family relations T2 (β)	.07	- .05	- .08	- .09	- .05	.01
Family relations T3 to internalizing T3 (β)	- .11	- .08	- .21*	- .21*	- .02	.07
Internalizing T3 to family relations T3 (β)	- .14*	.09	- .08	.04	- .07	- .17*
Correlation between exogenous variables T1	- .37**	- .23*	- .33**	- .23*	- .30**	- .11
Explained variance (%)						
Family relations T2	62	44	77	52	71	72
Internalizing T2	46	44	48	46	51	50
Family relations T3	77	62	80	63	73	71
Internalizing T3	62	59	58	56	57	57
χ^2	108.92	95.49	130.04	131.78	136.99	138.39
df	75	75	75	75	75	75
p	.01	.06	.00	.00	.00	.00
AGFI	.87	.88	.80	.78	.77	.77
RMSR	.06	.06	.08	.09	.09	.08

Note. df = degrees of freedom; AGFI=Adjusted Goodness of Fit; RMSR = Root Mean Squared Residual . * $p \le .05$. ** $p \le .01$. Exogenous variables are Time 1 family relations and Time 1 internalizing.

Table 6.2
Standardized Estimates of the Structural Coefficients for Each Family Dyad: Cross-Sectional Stability Model Predicting Externalizing Behavior

Structural parameters	Estimated Models					
	Mother-child ($n = 159$)	Child-mother ($n = 159$)	Father-child ($n = 104$)	Child-father ($n = 104$)	Mother-father ($n = 99$)	Father-mother ($n = 99$)
Stability coefficients						
Family relations T1 to T2 (β)	.71**	.62**	.80**	.68**	.83**	.81**
Family relations T2 to T3 (β)	.77**	.76**	.80**	.78**	.83**	.71**
Externalizing T1 to T2 (β)	.76**	.78**	.73**	.81**	.81**	.84**
Externalizing T2 to T3 (β)	.78**	.83**	.79**	.84**	.90**	.93**
Cross-sectional coefficients						
Family relations T2 to externalizing T2 (β)	- .03	.00	- .16	- .03	- .02	- .01
Externalizing T2 to family relations T2 (β)	- .17	- .13	- .10	- .11	- .06	- .01
Family relations T3 to externalizing T3 (β)	- .10	- .05	- .15	- .11	.02	.09
Externalizing T3 to family relations T3 (β)	- .18*	- .06	- .15	- .06	- .08	- .23**
Correlation between exogenous variables T1	- .57**	- .33**	- .55**	- .32**	- .25*	- .21
Explained variance (%)						
Family relations T2	64	45	75	51	71	71
Externalizing T2	62	63	68	67	66	70
Family relations T3	77	61	81	64	73	72
Externalizing T3	72	72	79	78	80	81
χ^2	77.36	53.24	57.31	50.57	49.06	34.83
df	39	39	39	39	39	39
p	.00	.06	.03	.10	.13	.66
AGFI	.86	.90	.84	.85	.85	.89
RMSR	.07	.05	.08	.06	.08	.05

Note. df =degrees of freedom; AGFI=Adjusted Goodness of Fit; RMSR = Root Mean Squared Residual. * $p \leq .05$. ** $p \leq .01$. Exogenous variables are Time 1 family relations and Time 1 externalizing.

Cross-Lagged Stability Model

The standardized parameter estimates of the structural model presented in Figure 6.2 are shown in Tables 6.3 and 6.4.

Inspection of the cross-lagged coefficients indicated three significant cross-lagged associations, but no evidence for mutual influences between family relations and internalizing or externalizing behavior for any of the dyads. Both the child's internalizing ($\beta = -.17, p \leq .05$) and externalizing behavior ($\beta = -.25, p \leq .01$) at Time 2 had an influence on the Time 3 father-mother relationship, and Time 2 child-father relationship had an effect on Time 3 internalizing ($\beta = -.17, p \leq .05$), indicating that both the higher the level of internalizing and externalizing behavior at Time 2 the more negative the Time 3 father-mother relationship was, and a positively qualified child-father relationship at Time 2 predicts a lower level of internalizing behavior at Time 3. Moreover, indirect effects (not shown in the Table) were found for the Time 1 mother-child relationship on Time 3 internalizing ($\beta = -.18, p \leq .05$) and for the Time 1 father-child relationship on Time 3 internalizing ($\beta = -.26, p \leq .01$), indicating that a positively qualified parent-child relationship at referral is related to a lower level of child internalizing behavior one year later, mediated by the parent-child relationship and internalizing behavior at Time 2.

The percentage of variance accounted for in the latent constructs assessed at Time 2 and Time 3 ranged from 45% (child-mother dyad) to 80% (father-child dyad) for family relationships, from 44% (Time 2) to 60% (Time 3) for internalizing, and from 62% (Time 2) to 80% (Time 3) for externalizing.

Goodness of fit indices for this cross-lagged model were highly similar to those obtained for the cross-sectional model.

Table 6.3
Standardized Estimates of the Structural Coefficients for Each Family Dyad: Cross-Lagged Stability Model Predicting Internalizing Behavior

Structural parameters	Estimated Models					
	Mother-child (*n* = 159)	Child-mother (*n* = 159)	Father-child (*n* = 104)	Child-father (*n* = 104)	Mother-father (*n* = 99)	Father-mother (*n* = 99)
Stability coefficients						
Family relations T1 to T2 (β)	.81**	.65**	.84**	.69**	.84**	.85**
Family relations T2 to T3 (β)	.83**	.79**	.88**	.81**	.84**	.82**
Internalizing T1 to T2 (β)	.61**	.66**	.60**	.62**	.69**	.71**
Internalizing T2 to T3 (β)	.74**	.76**	.66**	.67**	.75**	.76**
Cross-lagged coefficients						
Family relations T1 to internalizing T2 (β)	- .14	- .02	- .18	- .15	- .04	.00
Internalizing T1 to family relations T2 (β)	.06	- .07	- .09	- .10	.00	- .01
Family relations T2 to internalizing T3 (β)	- .10	- .08	- .16	- .17*	.00	.03
Internalizing T2 to family relations T3 (β)	- .12	.05	- .02	.03	- .02	- .17*
Correlation between exogenous variables T1	- .37**	- .23*	- .32**	- .22	- .30**	- .11
Correlated residuals						
T2	.03	.00	.07	.10	.06	- .03
T3	.07	- .02	.09**	.06	.08	.03
Explained variance (%)						
Family relations T2	63	44	75	51	70	72
Internalizing T2	46	44	46	45	50	50
Family relations T3	75	61	80	64	72	71
Internalizing T3	60	60	55	55	56	57
χ^2	108.68	94.97	129.25	131.32	135.84	137.63
df	73	73	73	73	73	73
p	.00	.04	.00	.00	.00	.00
AGFI	.87	.88	.79	.78	.77	.77
RMSR	.06	.06	.08	.09	.08	.08

Note. df = degrees of freedom; AGFI=Adjusted Goodness of Fit; RMSR = Root Mean Squared Residual. * $p \leq .05$. ** $p \leq .01$. Exogenous variables are Time 1 family relations and Time 1 internalizing.

Table 6.4
Standardized Estimates of the Structural Coefficients for Each Family Dyad: Cross-Lagged Stability Model Predicting Externalizing Behavior

	Estimated Models					
Structural parameters	Mother-child (n = 159)	Child-mother (n = 159)	Father-child (n = 104)	Child-father (n = 104)	Mother-father (n = 99)	Father-mother (n = 99)
Stability coefficients						
Family relations T1 to T2 (β)	.75**	.62**	.84**	.67**	.84**	.84**
Family relations T2 to T3 (β)	.82**	.76**	.83**	.79**	.84**	.79**
Externalizing T1 to T2 (β)	.81**	.78**	.76**	.79**	.83**	.84**
Externalizing T2 to T3 (β)	.83**	.83**	.83**	.86**	.89**	.90**
Cross-lagged coefficients						
Family relations T1 to externalizing T2 (β)	.04	- .02	- .10	- .07	.04	.00
Externalizing T1 to family relations T2 (β)	- .08	- .12	- .04	- .12	.01	.00
Family relations T2 to externalizing T3 (β)	- .03	- .04	- .09	- .06	.01	.03
Externalizing T2 to family relations T3 (β)	- .08	- .05	- .11	- .02	- .08	- .25**
Correlation between exogenous variables T1	- .57**	- .33**	- .55**	- .32**	- .26*	- .21
Correlated residuals						
T2	.11**	.04	.09**	.03	.07	.00
T3	.11**	.04	.08**	.07*	.00	- .02
Explained variance (%)						
Family relations T2	63	45	74	51	71	71
Externalizing T2	62	63	67	66	67	70
Family relations T3	75	61	80	64	73	74
Externalizing T3	72	71	78	77	79	80
χ^2	72.80	53.07	56.47	49.16	46.36	33.09
df	37	37	37	37	37	37
p	.00	.04	.02	.09	.14	.65
AGFI	.86	.89	.83	.85	.85	.89
RMSR	.07	.05	.08	.06	.08	.05

Note. df = degrees of freedom; AGFI=Adjusted Goodness of Fit; RMSR = Root Mean Squared Residual. * $p \leq .05$. ** $p \leq .01$. Exogenous variables are Time 1 family relations and Time 1 externalizing.

Discussion

The aim of the present study was to examine the direction of the cross-sectional and cross-lagged associations between family relations and problem behavior in a sample of children and adolescents referred for mental health services. This research was unique in studying three different family relationships, i.e., the mother-child, the father-child, and the mother-father relationship as judged by both members of the dyad, and both internalizing and externalizing behavior. Our results clearly demonstrate the importance of studying all three family dyads in relationship with different forms of child problem behavior.

The cross-sectional stability models tested in this study indicated more associations with family relations for internalizing than for externalizing behavior. For internalizing effects of family relations on problem behavior as well as vice versa were found, whereas for externalizing only unidirectional effects were observed, i.e., from the child's behavior to family relations. Interestingly, Time 2 mother ratings of her relationship with the child had an influence on internalizing problems, whereas internalizing problems at Time 3 had an influence on the mother-child relationship, suggesting that both the child's behavior and the mother-child relationship mutually maintain each other. For the father-child relationship, as judged by both members of the dyad, only an effect from the relationship to child internalizing behavior was observed. The fact that this influence was found for both father and child ratings of their mutual relationship yields evidence that the association is real and cannot be attributed solely to possible rater bias.

Our results indicate only few and nonsystematic cross-lagged influences between family relations and child problem behavior. The child-father relationship at Time 2 had an influence on internalizing behavior at Time 3, indicating that children who rated their relationship with fathers as less positive had a greater chance to have a higher level of internalizing behavior six months later. Furthermore, both the child's internalizing and externalizing behavior at Time 2 had an effect on the father-rated marital relationship at Time 3, which indicates that a high level of child problem behavior has a negative influence on the marital relationship. This latter finding was in accordance with the findings of Blanz, Schmidt and Esser (1992), who observed a longitudinal effect of child problem behavior on marital conflicts assessed 5 years later. However, it remains unclear why we did not find an effect on the marital relationship as

perceived by the mother. Obviously, further study is indispensable to replicate our findings.

Strikingly, given the high stabilities for internalizing as well as externalizing behavior, it seems that both types of problem behavior maintain themselves, suggesting that targeting the child's problem behavior should be the most important aim of interventions. However, while externalizing behavior is mainly determined by previous externalizing behavior, internalizing behavior is both determined by previous behavior and family relations. Worth mentioning is father's role herein: in both the perception of the child and the father their mutual relationship has an influence on internalizing behavior. The larger number of associations between family relations and internalizing along with the observed indirect effects of both the mother-child relationship and the father-child relationship on internalizing behavior, indicates that possibly family relations could play a significant role in the treatment of internalizing behavior. This means that the treatment of children with internalizing problem behavior should also include efforts to improve the quality of parent-child relationships. However, given the strong short-term stabilities of the parent-child relation we should realize that it would probably take a relatively long time before changes in family relations will take place.

Theories concerning the effects of the marital relationship on the development of child problem behavior (e.g., Davies & Cummings, 1994; Emery, 1982; Grych & Fincham, 1990; Harold et al., 1997) were not supported by this study, suggesting that the marital relationship is less important once the problem behavior has developed. Maybe, the relationship between the marital relationship and child problem behavior is less direct, but rather mediated by the parent-child relationship. However, within the scope of the present study we could not examine this possibility. Future research is clearly needed to test this hypothesis. Another possibility is that the marital relationship as measured in this study does not represent the level of analysis at which the quality of the mother-father relationship is influential. Reviews of the literature have suggested that overt marital conflict may be a better predictor of child problem behavior than a global measure of marital dissatisfaction (Davies & Cummings, 1994; Grych & Fincham, 1990). Thus, possibly studying actual interparental conflicts and how these conflicts are handled rather than reported quality of the marital relation may yield stronger observed associations with child problem behavior.

Although existing family models assume reciprocal effects between family relations and

child problem behavior our results demonstrated that this hypothesis does not hold for all types of problem behavior or family relations in children with already identified psychopathology. Actually, only the observed associations between the mother-child relationship and internalizing behavior suggest possible bidirectional causality. This finding indicates that the child's internalizing behavior is probably not only reciprocally related to distress in other family members as was demonstrated by the study of Ge et al. (1995), but also with the quality of family relations. However, it is important to note that this applies only to the mother-child relationship and not to the father-child relationship. Possibly, as primary caregivers, mothers will have a better view of their child's internalizing problems than fathers do. As a result, they will be more likely to affect and be affected by their child's behavior.

For externalizing behavior we only observed effects from the child's behavior to family relations and not vice versa. Possibly, family relations have an influence on the development of externalizing behavior, but their effects diminish once the problem behavior has developed. In a previous report we demonstrated that despite the high stability of externalizing behavior there were also significant differences in the rate of change in behavior between children (Mathijssen, Koot, & Verhulst, in press). Probably, other factors not measured in this study, for example improvements in the relationship with peers and / or siblings and treatment, might have an influence on the course of already identified externalizing behavior (e.g., Duncan, Duncan, & Hops, 1994, 1996; Kazdin, 1987; Patterson, 1993). Apparently, further research is required to test the possible influences of these factors on change in externalizing behavior.

The generally medium-sized cross-sectional associations between the parent-child relationship and both internalizing and externalizing behavior found at Time 1 suggest that complex processes between family relations and child problem behavior have taken place before Time 1 in this study. Probably, these cross-sectional associations reflect the outcome of the history which children and their parents have had with each other. This suggestion is highlighted by the findings of Anderson, Lytton, and Romney (1986), who observed that mothers react more negatively to their own conduct disordered son than to an unfamiliar conduct disordered boy, indicating that the history of the parent-child relationship has an important influence on current interactions.

There may be several reasons why we found relatively few cross-lagged effects in the present study. First, one might argue that the use of a clinical sample has lead to a reduction of range for both the child's behavior and for family relations. However, previous analyses on these data have demonstrated significant differences between families at intake in the level of child problem behavior as well as in the quality of relations (Mathijssen et al, in press). Second, maybe families and children have a greater impact on each other in younger than in older children (e.g., Blanz et al., 1992; Miller, Cowan, Cowan, Hetherington, & Clingempeel, 1993). For example, the study by Miller et al. (1993) demonstrated that although family relations have an impact on externalizing behavior in both pre-schoolers and early adolescents, the influence on the younger children was much greater. Moreover, the study by Cohen and Brook (1995) showed that the cycle of coercion for externalizing behavior was especially apparent from early childhood to middle childhood in comparison with the period from middle childhood to adolescence.

Third, the relatively high stability coefficients found for family relations, as well as for internalizing and externalizing behavior make it difficult to detect any reciprocal effects. The high stabilities imply that with children at least in the age range in this study, i.e., 9 to 16 years, family relations and child problem behavior may be trait-like and less prone to change. However, one might also argue that despite the strong stability coefficients there remains some change in both family relations and child psychopathology which could possibly be explained. Finally, other variables not included in the present study could account for these minimal changes. The limited sample size in our study was inadequate to include more variables in our structural model. Future studies with larger sample sizes are clearly needed to test for effects of other factors, such as the child's sex and temperament, stressful life-events, sibling relations and peer relations (e.g., Duncan et al., 1996; Fergusson & Lynskey, 1996; Vuchinich et al., 1992).

In conclusion, the larger number of observed cross-sectional associations in comparison with cross-lagged associations suggests that the prediction of effects is more accurate when both data on family relations and on child problem behavior are obtained closer in time. Moreover, these findings suggest that the relationship between child problem behavior and family relations has to be understood as a dynamic interactional process, which is difficult to

catch in a cross-lagged model with only three fixed data points and relatively large time intervals as was the case in this study.

The present study provides important starting-points for further research on this topic. First, the longitudinal association between family relations and child problem behavior should also be studied in younger age groups for which suggestive evidence is available that the family has a stronger influence on the child's behavior. Second, this linkage should also best be studied in both clinical and non-clinical samples. Examining the linkage in clinical populations provides useful information for intervention purposes, whereas the assessment of the association in non-clinical samples gives important information for prevention aims. Third, more measurements with shorter time intervals are needed in order to get a more detailed picture of the mutual dynamic relations between child psychopathology and family relations. Fourth, it may also be important to use observational methods for the assessment of family relations. The NFRT gives a reliable picture of the way family members perceive their relationship with other family members. However, it does not reflect the way in which family members behave and how they interact with the others. Possibly, the actual interactions between family members form a stronger predictor for the change and maintenance of problem behavior than the more global individual's perception of the quality of relationships, which may reflect the outcome of these interactions only across a long-term interval. Aspects which deserve more attention in future studies are the degree of communication and conflicts between family members (e.g., Wasserman, Miller, Pinner, & Jaramillo, 1996).

CHAPTER 7

One-Year Outcome of Referred Children and Adolescents: Perceived Changes in Problem Behavior, Family Functioning, Need for Professional Help and Dropping Out

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Abstract

In the present study the one-year outcome of children and adolescents referred for emotional and / or behavioral problems was examined. In general, parents perceived both an amelioration in the child's behavior and in family functioning, with more positive alterations for child problem behavior. Parent-perceived changes in problem behavior were moderately associated with changes reported on the Child Behavior Checklist. Besides, parents' retrospective information was mainly determined by the actual child's behavior, indicating that for evaluative purposes retrospective information is likely not to be valid. Parent-perceived changes in family functioning were only associated with changes in mother ratings of her relationship with the child based on a standardized measurement. One year after referral need for professional help for child problem behavior and for family functioning was reported by respectively 40.2% and 21.2% of the families. The need for help for the child's problems was mainly determined by the severity of problem behavior, whereas the need for help for family functioning was mainly determined by both the father-child and the mother-father relationship. Children with a high level of problem behavior at intake were more likely to be patients who were still under treatment or dropouts. The finding that completers had less problem behavior at intake together with the finding that they also improved to a larger degree indicate that interventions are likely to be most effective for those children with the least severe problems.

Introduction

For both clinicians and policy makers understanding the outcome and course of psychopathology among initially referred children and adolescents is highly relevant. Unfortunately, until now systematic study on referred children and adolescents is scarce. Moreover, outcome studies among clinical samples have mainly examined respondents who have received treatment and excluded the dropouts (e.g., Asarnow, Goldstein, Tomspon, & Guthrie, 1992; Kazdin, 1995; Kiser et al, 1996; Leonard et al., 1993; Van Furth et al., 1996). However, in order to get a more comprehensive understanding of outcome of referred samples, including both those who receive or have received treatment and those who terminated prematurely, is necessary.

Therefore, in the present study we examined in a sample of 9 to 16-year old children initially referred for emotional and / or behavioral problems the one-year outcome in terms of perceived changes in child problem behavior as well as in family functioning, the actual need for professional help, and the number of patients who completed, who dropped out, and who were still in treatment. Moreover, we studied the factors associated with perceived changes, need for help and the treatment status.

Typically, outcome studies have been focused on symptom reduction (Jensen, Hoagwood, & Petti, 1996). Although this information is highly relevant, in recent years there has been a call for separate attention to consumer's experiences and perspectives as a way of assessing outcome (Hoagwood, Jensen, Petti, & Burns, 1996). Especially for clinical purposes it is important to know whether parents experience possible changes in the child's problem behavior also as meaningful. Additionally, assessment of outcome for referred children and adolescents should also include family variables, particularly because the family plays a central role in the lives of children (Fauber & Long, 1991). Hence, in the present study we examined parents' reports on change in both child problem behavior and family functioning.

In previous reports using standardized questionnaires we found improvements in both parent- and teacher-rated problem behavior (Mathijssen, Koot, & Verhulst, in press), and in child ratings of the relationship with their mothers (Mathijssen, Koot, & Verhulst, 1998). Since we asked parents 6 months as well as 1 year after referral whether they had perceived changes in the child's behavior and in family functioning, the present study has the unique

opportunity to examine the association between change based on standardized measures and change based on retrospective information. Moreover, we also studied possible correlates, i.e., child and family factors and stressful life-events, of parent perceived changes in problem behavior and in family functioning.

At the moment of referral all families need professional help for their children's emotional and / or behavioral problems. A particularly important question is how this need for help changes after referral. Moreover, for the planning and evaluation of interventions understanding the factors which are predictive and / or associated with the need for help as an outcome variable is of great relevance. Since family dysfunctioning is highly prevalent among families of children referred for mental health services (Verhulst & Van der Ende, 1997), it is not inconceivable that some parents will also need help for family functioning. Hence, we examined the need for help and its associated factors for both the child's behavior and family functioning one year after referral.

There are children who are referred but who do not really receive help (e.g., Armbuster & Schwab-Stone, 1994; Gilbert, Fine, & Haley, 1994; Kazdin & Mazurick, 1994). Since those who drop out do not receive the intervention they needed, dropping out is seen as an issue that raises broad concern in clinical practice. Although, it is implicitly assumed that those who drop out are at disadvantage (Armbuster & Kazdin, 1994), empirical evidence for this assumption is lacking. The relatively few studies which have examined the posttreatment adjustment for dropouts (Kazdin, Mazurick, & Siegel, 1994; Pekarik, 1992; Weisz & Weiss, 1989) are limited in several ways. First, in the study by Kazdin et al. (1994), the follow-up interval for the treatment completers versus the dropouts differed. Second, although Pekarik (1992) studied the outcome of both completers, patients who were still under treatment and dropouts at the same time point, the time-interval employed was relatively short, i.e., four months after intake. Moreover, his study involved a small number of children ($n = 47$). Third, Weisz & Weiss (1989) studied only a subsample of previously referred children. Furthermore, they only investigated completers and dropouts, but not patients who were still under treatment. In the current study we examined both predictors and one-year outcome of completers, dropouts as well as patients who were still under treatment.

The purpose of the present study was to evaluate the one-year outcome of children and

adolescents referred for emotional and / or behavioral problems. First, we examined parents' perceptions of change in both child problem behavior and family functioning and their linkages with changes based on standardized measures. Besides we tried to identify the characteristics, i.e., child and family variables and stressful life-events, associated with perceived changes. Second, we investigated the need for professional help and its associated variables. And finally, we examined both pretreatment and one-year outcome differences between completers, patients who were still under treatment, and dropouts.

Method

Subjects

The sample was selected from families, referred to one of three Regional Mental Health Agencies (RMHAs) in the greater Rotterdam area, Capelle aan den IJssel, or Delft. To be included in the sample, families and children had to meet the following criteria: children were between 9 and 16 years old; the children were not diagnosed as mentally handicapped or autistic; parents and children had enough command of the Dutch language to complete questionnaires; they were not referred to another institute immediately after intake; the children were the immediate reason for the referral; both parents were informed about the referral; the child had lived for more than half a year in the current family.

Between March 1993 and December 1994, 471 families with children between 9 and 16 years old were referred to one of the three RMHAs, 401 families of which met the criteria for inclusion in our study.

At intake, the purpose of the study was explained to parents by a mental health worker of the RMHA. At the same time parents were asked for participation. However, 57 families were not asked for participation by the mental health worker. For 47.7% of these cases, the mental health worker omitted to introduce the study, and it was not possible to ask for participation later on, because the family had just a single consultation. For 14 families (24.5%) the mental health worker purposely did not introduce the study. Motives mentioned were: resistance against testing, crisis situation, or the study was considered too much of a burden to the family or child.

Of the 344 remaining families, 223 (64.8%) participated in our study. Six months after the

first assessment (Time 2) and six months after the second assessment (Time 3) parents were asked to fill in a questionnaire about perceived changes in child problem behavior and family functioning and about need for help for the child and for family functioning. For 179 families (80.3% of the Time 1 sample) usable and complete data were obtained at both follow-up assessments.

In order to test whether there was a selective loss of families, we compared the dropouts with the remainers with respect to sex, age, temperament, and level of intelligence of the child, parental occupational and educational level, Nijmegen Family Relations Test scores (NFRT: Oud & Welzen, 1989), and Child Behavior Checklist (CBCL; Achenbach, 1991a) and Teacher's Report Form (TRF; Achenbach, 1991b) Total Problems, Internalizing and Externalizing scores. In total, 38 tests were performed. These tests revealed only significant differences between the two groups for both parent and teacher rated Externalizing, indicating that families with children who displayed more Externalizing behavior ($t = 2.58, p \leq .01$, and $t = 2.66, p \leq .05$ for CBCL and TRF scores, respectively) and families in which the mother reported less recognition ($t = -2.29, p \leq .05$) and trust ($t = -2.39, p \leq .05$) in the relationship with their children were somewhat more likely to drop out from the study.

The remaining families consisted of 113 boys and 66 girls (mean age = 11.3 years, $SD = 2.1$). Mothers were on average 38.0 years old ($SD = 5.2$) and fathers were on average 41.0 years old ($SD = 5.5$). The mean occupational level of mothers on a 6-point scale (6 = highest; Van Westerlaak, Kropman, & Collaris, 1975) was 2.89 ($SD = 1.12$), and of fathers 3.35 ($SD = 1.54$). Mean parental educational level according to a 7-point scale (7 = highest; Standard Educational Classification, CBS, 1987) was 3.00 ($SD = 1.53$) for mothers, and 3.24 ($SD = 1.79$) for fathers. Of the parents, 67.6% were married, 22.3% were living alone, 7.3% were cohabiting, 2.8% had a partner but were living alone. In 61.5% of the cases, the child was living with both biological parents, 21.8% with the biological mother alone, and 9.5% with the biological mother and partner. The remaining 7.2% were living either with adoptive parents (2.8%), with biological father alone (1.1%), with biological father and partner (1.1%), with foster parents (1.1%), alternately with biological father and mother (0.6%), or with stepmother and partner (0.6%). Main reasons for referral, based on information from the parents, were emotional problems (54.7%), behavior problems at home (39.1%), school and

learning problems (23.5%), problems in child-peer relationships (22.3%), behavior problems at school (19.0%), problems in the parent-child relationship (17.9%), sleep and/or eating problems (13.4%), and problems in child-sibling relationships (13.4%). For 142 (79.3%) children, two or three problems were mentioned.

Procedure

If parents agreed to participate they were contacted by telephone to make further appointments. The assessment session was scheduled at one of the three RMHAs. At the outset of the session, the interviewer explained the procedure and obtained written consent from the parents. The parents were interviewed about demographic characteristics, the reasons for referral, and earlier treatment for mental health problems of the child or other family members. Next parents and children completed the NFRT (Oud & Welzen, 1989), and parents completed the Dutch version of the CBCL (Achenbach, 1991a), and the Dutch version of the Revised Dimensions Temperament Survey (DOTS-R; Windle & Lerner, 1986). The items of the NFRT were read aloud to the children by a research assistant. The intelligence level of the children was tested with the Dutch version of the Wechsler Intelligence Scale for Children-Revised (WISC-R; Van Haasen et al., 1986). After obtaining the parents' consent to gather information on the child's behavior at school, the TRF was sent to the teacher.

Both six months after the first assessment and six months after the second assessment the mental health worker of each family was contacted to inquire whether there were any objections to approach the family for a follow-up. If there were no objections parents were contacted by telephone. If parents agreed to participate a set of questionnaires (including the NFRT, CBCL, and a questionnaire about perceived changes in problem behavior, changes in family functioning, and perceptions about received help) was sent to them and an appointment was made to complete the NFRT with the children. For seven families (3.1%) the mental health worker refused at Time 2 to give permission to contact the family again. For two of these seven families also at Time 3 the mental health worker refused participation. One of these seven children as well as one of the other children for whom the mental health worker did not refuse participation moved from their biological mother to their biological father.

After six months 53.1% of the parents ($n = 95$) reported that they still received treatment

from the RMHA, after a year this had decreased to 33.0% ($n = 59$). The latter 59 families were defined as *patients who were still under treatment*. Sixty families (33.5%) ended the treatment, because the problems were either solved, improved to an acceptable level, or the first consultations were sufficient to go on further without help. These families were defined as *completers*. Forty-four families (24.6%) ended the treatment, because they either did not see the purpose of help, they did not see any improvements of the child's behavior, or they were otherwise not satisfied with the help received, and were defined as *dropouts*. The remaining 16 families (8.9%) were referred to another agency, 10 of them were still in treatment (patients who were still under treatment), 1 of them completed the treatment (completer), and 5 of them dropped out (dropouts). In sum, one year after referral 69 families were still in treatment (38.5%), 61 families completed the treatment (34.1%), and 49 families dropped out (27.4%).

The mean number of therapeutic sessions at the RMHA across a one-year interval was 13.7 (range 1-61; $SD = 12.8$), with significant more sessions for patients who were still under treatment ($F = 35.16$, $p \le .01$; mean $= 22.3$) than for both dropouts (mean $= 6.4$) and completers (mean $= 10.0$).

Measures

Perceived Changes in Child Problem Behavior and Family Functioning. At six-month (Time 2) as well as at one-year follow-up (Time 3) parents were asked whether the problems of their child and their family functioning had changed between the first consultation at the RMHA and Time 2, and between Time 2 and Time 3. If they indicated some changes, they were asked what had changed. Subsequently, their answers were coded as -1, in case of increase of problem behavior, 0, if they mentioned no changes and 1, in case of decrease of problem behavior. In case of both a mother and a father score these scores were summed and divided by two, yielding one score for each family. Moreover, the scores of Time 2 and Time 3 were summed, yielding one change score ranging from -2 to +2. Mean level of perceived changes in problem behavior was .9 ($SD = .9$). The same procedure was followed for the answers on family functioning. Mean level of perceived changes in family functioning was .5 ($SD = .6$).

Need for Professional Help for Child Problem Behavior and Family Functioning. At one-year follow-up parents were asked whether they still needed help for their child's behavior and / or for family functioning. If we had information from both mother and father these scores were combined, i.e., the highest score was used. Thus, in case of disagreement between parents, the family received the code 'needs help'.

The following measures encompassed standardized tests and questionnaires with well-known reliability and validity.

Intelligence. Two verbal (Vocabulary, Similarities) and two performance (Block Design, Picture Arrangement) subtests of the *WISC-R* (Van Haasen et al., 1986) were used to assess the children's level of intelligence. These subtests were selected because of their high correlations with the full scale score (r = .90; Silverstein, 1970). The normed scores of each individual for each subtest were summed and divided by four to get one score of intelligence. The mean level of intelligence with a theoretical range of 1-19 was 9.5 (SD = 2.5), with higher scores reflecting higher intelligence.

Temperament. To assess children's temperament according to parent ratings, the Dutch translation of the *DOTS-R* (Koot, 1993; Windle & Lerner, 1986) was used. The DOTS-R consists of 54 4-point items, ranging from 'usually false' to 'usually true'. In order to construct one temperament score, all items were summed. For the 179 children, 174 mother-completed DOTS-Rs (α = .81), and 124 father-completed DOTS-Rs (α = .81) were present. For these families for which both a mother- and a father-completed DOTS-R were available (n = 120) the temperament scores were summed and divided by two (α = .88), with higher scores reflecting an easier temperament.

Problem Behavior. The *CBCL 4-18* (Achenbach, 1991a) and the *TRF* (Achenbach, 1991b) were used to obtain standardized parent and teacher reports on children's behavioral/emotional problems. The CBCL and the TRF both contain 120 problem items to which the respondent can answer '0' if the problem item is not true of the child, '1' if the item is somewhat or sometimes true, and '2' if it is very true or often true. By summing 1s and 2s a *Total Problem* score was computed for both CBCL and TRF. For 150 children (83.8%) and 129 children (72.1%) a teacher-competed TRF was available at Time 1 and Time 3, respectively. Moreover, for 103 children (57.5%) TRF scores were available at all three

assessments.

Family Relations. The *NFRT* (Oud & Welzen, 1989) comprises of 67 5-point items, and is designed to measure the child's perception of his/her relation with other family members. On basis of the child's version of the NFRT a parent's version was constructed. Only 5 items had wordings that were slightly different from the original child's version. The NFRT operationalizes six relational dimensions. However, for this study we used only two dimensions (restrictiveness and justice), because an earlier study has demonstrated that these two dimensions loaded on one factor (Mathijssen, Koot, Oud, & Verhulst, 1998). *Restrictiveness* (12 items) is the degree to which the respondent experiences that the other family member places demands on him/her (e.g., 'This person expects too much from me'). *Justice* (12 items) refers to the way the balance of giving and taking in the relationship with the other is experienced (e.g., 'Whatever I do, this person is never satisfied by me'). Relationship scores were derived by summing both dimensions for each relationship separately, yielding six different scores, i.e., scores for the mother-child, the father-child, and the mother-father relationship as perceived by each of the family members involved in the dyad. Higher scores indicate more positive relationships. Cronbach's alpha computed for each family member averaged across time was .87 for child ratings and .85 for mother ratings of the mother-child relationship; .88 for child ratings and .84 for father ratings of the father-child relationship; and .90 for mother ratings and .87 for father ratings of the mother-father relationship.

Throughout the text the first mentioned family member was always the reporter of the relationship. For example, mother-child relationship means the relation between mother and child as rated by the mother.

Stressful Life-Events. A slightly modified version of the *Life-Events Questionnaire* (LEQ; Berden, Althaus, & Verhulst, 1990) was used to determine the total number of stressful experiences that had occurred between Time 1 and Time 2, and between Time 2 and Time 3. Only those events for which parents indicated that they have had a negative impact on the child and which were not directly related to the child's problem behavior were used in this study (e.g., job-loss of father, parent left the family, death of a friend of the child, hospitalization of the child, parents, or siblings). A stressful life-events score was computed

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by summing all events reported across the one-year interval. Parents reported 0 to 8 stressful life-events for their children in this sample (mean = 0.7, SD = 1.2).

Results

Descriptive Data

To obtain information on the possible typicality of this referred sample, CBCL and TRF Total Problem scores were compared to those obtained for a large sample of consecutive referrals of children of comparable age and sex (N = 2004, N = 1692 for CBCL and TRF scores, respectively) referred to all RMHAs in the Rotterdam region during an 18 month period (Verhulst, Van Der Ende, & Koot, 1996). These comparisons showed no significant differences between the two groups.

Perceived Changes in Problem Behavior

In 15 families, parents (8.4%) reported an increase of problem behaviors across a one-year interval; in 38 families (21.2%), parents reported no differences; and in 126 families (70.4%) parents reported a decrease of problem behavior.

To assess whether perceived changes were related to changes based on CBCL as well as on TRF scores, we first modeled the latter scores using latent growth modeling (LGM; see also Mathijssen et al, in press). Briefly, in LGM it is assumed that the observed status of problem behavior at a given time is a function of a constant + slope + random error (Bryk & Raudenbusch, 1992; Francis, Fletcher, Stuebing, Davidson, & Thompson, 1991; Willet & Sayer, 1994). The slope describes the average rate of change in the level of problem behavior and is determined by the repeated measures. In case of significant differences in the rate of change in problem behavior scores between children it was allowed to examine the association with parent perceived changes.

In addition to mean decrease of 10.2 and 8.2 in respectively CBCL and TRF Total Problem scores across the 1-year interval, the latent growth analyses demonstrated both significant interindividual differences in rate of change for parent (t = 3.47, $p \leq$ .01) and teacher ratings (t = 2.71, $p \leq$ .01). A significant correlation was found between rate of change in CBCL Total Problems and perceived changes (r = .44, $p \leq$ .01), indicating that a decrease in the level of

problem behavior, as assessed by the CBCL was associated with positive changes in the child's behavior as perceived by the parent. No significant association was observed between the rate of change in TRF scores and perceived changes ($r = .08, p > .05$).

Zero-order correlations between perceived changes in problem behavior and child characteristics, i.e., sex, age, intelligence level, and level of problem behavior, family relations, i.e., the mother-child, the father-child and the mother-father relationship as perceived by both members of the dyad, and stressful life-events are shown in Table 7.1. In sum, these results indicated that a more difficult temperament at intake, higher problem scores and less positive family relations one year after referral, and more intermediary stressful life-events were significantly ($p \leq .05$) associated with less perceived positive changes of the child's behavior.

To assess the unique contribution of these significantly correlated variables to perceived changes in problem behavior, a stepwise multiple regression analysis was conducted with perceived changes as the dependent variable and the child's temperament, Time 3 CBCL Total Problems, mother-child, mother-father, and child-father relationships, and stressful life-events as independent variables. Since including TRF Total Problem scores would reduce our sample size to 95, which would reduce the power to detect effects we did not use teacher ratings in this analysis.

Thirteen percent of the variance in perceived changes in problem behavior could be accounted for by Time 3 Total Problems ($\beta = -.36, p \leq .01$). Moreover, Time 3 mother-child relationship ($\beta = .19, p \leq .05$) accounted for an additional 3% of the variance, over and above Total Problems. These findings indicated that less Total Problems and a more positive mother-child relationship were uniquely associated with more parent-perceived changes in problem behavior.

Table 7.1

Correlations between Child, Family Characteristics, Stress, and Perceived Changes in Problem Behavior and Perceived Changes in Family Functioning

	Perceived Changes in Problem Behavior	Perceived Changes in Family Functioning
Time 1		
Child Characteristics		
Sex	.01[a]	.09[a]
Age	- .07	.09
Temperament	.20**	- .05
Intelligence	.03	.06
Total Problems (CBCL)	- .14	.06
Total Problems (TRF)	- .14	- .06
Family Relations		
Mother-Child	.08	- .13
Child-Mother	.00	- .11
Father-Child	.09	- .14
Child-Father	.03	- .09
Mother-Father	.08	.03
Father-Mother	- .04	- .07
Time 3		
Child Characteristics		
Total Problems (CBCL)	- .34**	- .08
Total Problems (TRF)	- .28**	- .15
Family Relations		
Mother-Child	.24**	.13
Child-Mother	.06	- .05
Father-Child	.15	- .10
Child-Father	.19*	- .03
Mother-Father	.22**	.15
Father-Mother	.06	- .02
Stressful Life-Events	- .17*	- .06

Note. CBCL = Child Behavior CheckList; TRF = Teacher's Report Form. [a] = eta; * $p \leq .05$. ** $p \leq .01$.

Perceived Changes in Family Functioning

In 7 families (3.9%) parents reported a deterioration of family functioning across a one-year interval, in 87 families (48.6%) parents reported no differences, and in 85 families (47.5%) parents reported an amelioration of family functioning.

To assess whether perceived changes in family functioning were related to changes based on NFRT scores, we followed the same procedure as for the CBCL and TRF scores. The latent growth analyses demonstrated significant interindividual differences in rate of change for the mother-child ($t = 2.15, p \leq .05$), the father-child ($t = 2.26, p \leq .05$), and the child-father relationship ($t = 3.50, p \leq .01$). A significant correlation was only found between rate of change in the mother-child relationship and perceived changes in family functioning ($r = .55$, $p \leq .01$), indicating that parents of families in which mothers reported ameliorations in the mother-child relationship based on a standardized measurement are also more likely to perceive positive changes in family functioning.

As is shown in Table 7.1, perceived changes in family functioning were not significantly associated with either child characteristics, family relations or stressful life-events.

Need for Help

One year after referral in 43 (24%) families parents still needed help for the child, in 29 families (16.2%) parents needed help for both the child and family functioning, in 9 families (5.0%) parents needed only help for family functioning, and in 98 families (54.7%) parents neither needed help for the child, nor for the family.

Fifty-seven (79.2%) of the 72 families who indicated that they still needed help for the problems of their child actually received help. Thirty-six (63.2%) families received this help from the RMHA, and 21 families from other agencies. Thirty-eight parents (21.2%) indicated that they needed help for family functioning, of which 21 (55.3%) actually received help.

To determine the association between child and family variables, stressful life-events, and perceived changes in problem behavior and family functioning and need for professional help we performed univariate logistic regression analyses. Table 7.2 shows the results of these analyses.

Two stepwise multiple logistic regression analyses, using the likelihood-ratio test, were

performed in order to test the unique contribution of each of the independent variables to the prediction of need for help for child behavior. The first analysis including the Time 1 predictor variables, i.e., temperament, parent-rated Total Problems, and both the mother-child and mother-father relationship revealed that only CBCL Total Problems ($r = .19$; $p \leq .01$) predicted need for help for the child's behavior one year after referral independently of the other variables. In the second analysis, with the Time 3 variables as predictors only actual parent-rated Total Problem behavior was a significant predictor ($r = .21$; $p \leq .01$) of the need for help one year after referral.

The stepwise multiple logistic regression analysis predicting the need for help for family functioning, using Time 1 predictor variables, showed that both the mother-father relationship ($r = -.18$; $p \leq .05$) and the father-child relationship ($r = -.12$; $p \leq .05$) had their own, unique contribution. These results indicated that a less positive mother-father relationship and a less positive father-child relationship at intake increased the likelihood of need for help for family functioning one year later.

The analysis on the Time 3 predictor variables showed that, as was the case with the Time 1 variables, the mother-father relationship ($r = -.24$; $p \leq .01$) as well as the father-child relationship ($r = -.15$; $p \leq .05$) contributed uniquely to the prediction of need for help for family functioning.

Ongoing Patients, Completers, and Dropouts

One-year after referral to a Mental Health Agency 69 families were still in treatment (38.5%), 61 families completed the treatment (34.1%), and 49 families dropped out (27.4%). Chi-square analyses indicated no differences between the three groups on sex of the child and need for help for family functioning. However, a significant difference was found on need for help for the child's behavior (χ^2 (df = 2, $N = 179$) = 38.96, $p \leq .01$), indicating that completers reported less need for help (13.1%) than patients who were still under treatment (66.7%) and dropouts (36.7%), and dropouts needed less help than patients who were still under treatment.

Table 7.2

Significant Correlations Derived from Univariate Logistic Regression Analyses Predicting the Need for Professional Help

	Need for Help Child Behavior	Need for Help Family Functioning
Time 1		
Child Characteristics		
Sex	-	-
Age	-	-
Temperament	- .09*	- .13*
Intelligence	-	-
Total Problems (CBCL)	.20**	.17**
Total Problems (TRF)	-	-
Family Relations		
Mother-Child	- .14**	-
Child-Mother	-	-
Father-Child	-	- .16*
Child-Father	-	-
Mother-Father	- .14*	- .17*
Father-Mother	-	- .16*
Time 3		
Child Characteristics		
Total Problems (CBCL)	.27**	.21**
Total Problems (TRF)	.24**	-
Family Relations		
Mother-Child	- .16**	- .17**
Child-Mother	-	-
Father-Child	-	- .20**
Child-Father	-	-
Mother-Father	-	- .24**
Father-Mother	- .11*	- .22**
Stressful Life-Events	.14**	-
Perceived Changes		
Child Problem Behavior	- .15**	- .19**
Family Functioning	-	-

Note. CBCL = Child Behavior CheckList; TRF = Teacher's Report Form. * $p \leq .05$. ** $p \leq .01$.

One-way analyses of variance were completed to examine whether the three distinguishing groups varied at pretreatment on child characteristics or family relations. These analyses indicated significant differences for Time 1 CBCL and TRF Total Problems ($F = 4.40$, $p \leq .01$; $F = 4.60$, $p \leq .05$, for parent and teacher ratings, respectively), reflecting higher parent-rated problem behavior scores for dropouts and ongoing children than for completers, and higher teacher-rated problem behavior for dropouts than for completers.

Between-group differences in one-year outcome measures were examined with one-way analyses of variance for perceived changes in the child's behavior and family functioning, and for stressful life-events. Analyses of covariance were conducted to compare between-group differences in child problem behavior and family relations one-year after referral, using the pretreatment data on these variables as covariates. The results showed that completers experienced less stressful life-events than patients who were still under treatment ($F = 4.77$, $p \leq .01$), completers reported more positive changes in the child's behavior than both patients who were still under treatment and dropouts ($F = 11.56$, $p \leq .01$), and dropouts reported less positive changes in family functioning than both completers and patients who were still under treatment ($F = 8.46$, $p \leq .01$). Parent ratings of Total Problems ($F = 3.70$, $p \leq .05$) differed between the three distinguishing groups, indicating that completers had a lower level of problem behavior than dropouts, after controlling for pretreatment scores, whereas there were no differences between completers and patients who were still under treatment or patients who were still under treatment and dropouts.

Discussion

Data from clinical populations can provide useful information on the outcome of families and children who seek treatment. The first purpose of the present study was to assess parent-perceived changes in child problem behavior and family functioning across a one-year interval after intake. On average, parents of referred children and adolescents reported an amelioration of the child's behavior and of family functioning, with more positive changes for problem behavior. These findings correspond with the results based on our analyses using standardized measures which demonstrated a decrease of both parent- and teacher-rated problem behavior, but only consistent ameliorations of the mother-child relationship as rated

by the child (Mathijssen, Koot, & Verhulst, in press, 1998). Moreover, the moderate correlation between perceived changes in problem behavior and the rate of change in CBCL Total Problems indicates that general parent-perceived changes coincide to a certain extent with changes based on standardized measures, although it is clear that both measures of change do not exactly assess the same thing.

Moreover, only Time 3 parent rated Total Problems and maternal ratings of her relationship with the child were retained as significant predictors of perceived changes in problem behavior in the multiple regression analysis, with the greatest effect for Total Problems. This finding indicates that parents' retrospective information on change of problem behavior is mainly determined by the actual level of the child's problem behavior. Thus, it may be questioned whether retrospective parent reports of changes in the level of their child's problem behavior reflect true changes.

Moreover, further inspections of our data revealed that parents who perceived increases in problem behavior reported, on average, an increase of 4.6 points on CBCL Total Problems across a one-year interval, parents who perceived no changes had a mean decrease of 6.0 points on the CBCL, and parents who perceived improvements in problem behavior scored, on average, 13.2 points lower on the CBCL. Since both 4.6 an 6.0 were not significantly different from 0, these results indicate that only a minor deterioration is sufficient for parents to report a worsening in problem behavior, whereas a minor improvement is not adequate enough for parents to report ameliorations. This finding is in keeping with the results of Verhulst, Eussen, Berden, Sanders-Woudstra and Van der Ende (1993), who showed that retrospective information on the course of problem behavior of children in the general population was not very reliable, especially in the case of increasing problems.

Perceived changes of family functioning were not associated with child characteristics or family relationship scores, at Time 1 or Time 3. This lack of associations together with the finding that only changes on the NFRT mother-child relationship scores were related to perceived changes in family functioning suggests that overall the family relationships as measured in this study do not tap the dimensions which parents judge as important in specifying ameliorations or deteriorations of family functioning. Closer investigation of the answers given by parents indicates that they primarily reported alterations in family conflicts,

tension and structure (i.e., consistency in handling rules). These aspects of family functioning seem to be more reflective of family processes than of family relationships.

Examination of the association between perceived changes in family functioning and rate of change in family relation scores based on the NFRT revealed only a significant linkage for the mother-child relationship. This finding is an additional support for the idea that the aspects of family relations we have studied were not the aspects which parents judge as important in specifying changes in family functioning.

One year after referral, 40.2% of the families indicated that they still needed help for the problems of their child. Both child and family factors, intermediary stress and perceived changes in child problem behavior were related to need for help for the child's behavior. Of the Time 1 predictor variables only parent-rated Total Problem behavior contributed uniquely to the prediction of need for help one year after referral, indicating that a higher level of Total Problems at intake increased the likelihood of a persistent need for help one year later. The analyses on Time 3 variables yielded the same results as on Time 1 variables, namely only the level of problem behavior predicted the need for help. Thus, although other cross-sectional studies have demonstrated that also other factors, such as family dysfunctioning, male sex, and stress (e.g., Costello & Janiszewski, 1990; Jensen, Bloedau, & Davis, 1990; Verhulst & Van der Ende, 1997) were predictive for the need for help, our results clearly demonstrated that once referred, only the initial severity of the child's problem behavior influenced the later need for help. However, it is important to realize that the lack of predictive influences of other factors in our study, i.e., temperament, family relations, stressful life-events, and perceived changes in the child's behavior, is presumably due to their shared variance with child psychopathology.

One year after referral 21.2% of the families indicated that they needed help for family functioning. Both initial and actual levels of the father-child relationship and the mother-father relationship increased the likelihood of need for help concerning family functioning. Thus, although family relations as we have assessed them in the present study do not seem to be indicative of perceived changes in family functioning, they are clearly related to perceived need for help regarding family issues.

The examination of dropouts, completers, and ongoing patients indicated that children with

a high level of problem behavior at intake are more likely to be patients who were still under treatment or dropouts one year after referral. Moreover, our results suggest that dropouts and ongoing patients were quite comparable to pretreatment characteristics, which makes it difficult to predict which children will drop out. However, given the finding that one year after referral dropouts did significantly worse than completers, after controlling for earlier problem behavior, this indicates that it is important to try to retain all families in treatment.

Completers had not only better outcome in terms of problem behavior, based on standardized measures, they also perceived larger improvements in problem behavior than both dropouts and ongoing patients. Thus, although, on average, parents of dropouts and ongoing patients also reported a decrease in problem behavior, this decrease was significantly lower than for the completers. Interestingly, dropouts perceived significantly less positive changes in family functioning than both completers and ongoing patients, suggesting that interventions have had positive influence on family functioning or that ongoing family problems may be a reason to drop out from treatment.

Our finding that children who completed treatment showed greater improvement in terms of problem behavior was contradictory to the findings of Pekarik (1992) and Weisz and Weiss (1989). Possibly, the 4-month follow-up used in the study of Pekarik (1992) was too short to detect differences in the course of problem behavior. Furthermore, the difference in definitions of dropouts in our study and in the study of Weisz and Weiss (1989), who defined dropouts as those children and families who did not continue treatment after intake might explain the difference in results. However, our finding was in keeping with the results of Kazdin et al. (1994), who demonstrated that although treatment dropouts improved, yet they were worse off than those who successfully completed treatment.

The finding that completers exhibited less problem behavior at intake along with their better outcome one year after referral suggests that intervention in a outpatient mental health agency is most effective for those children with the least severe problem behavior. Moreover, the finding that, on average, the dropouts received just as much therapeutical sessions as the completers is an additional support for the suggestion that especially the children with less problems will benefit most from therapeutical interventions.

In the present study we defined dropouts as those children who leave the RMHA at any

phase (i.e., intake, evaluation, treatment) in the clinic process. Although we are aware that dropouts are not a homogeneous group (e.g., Kazdin & Mazurick, 1994; Pekarik, 1992), it was not possible to categorize different groups. Because the procedures were not identical in each of the three agencies involved in the present study, the lines between assessment and treatment for the different agencies were not clear.

Several conclusions can be drawn from the present study. First, the finding that children with less severe problem behavior are most likely to benefit from interventions indicates that it is critically important to recognize children at risk for the development of psychopathology at an early stage. Second, children with a high level of problem behavior at intake deserve special attention because one year later they need the most help and they are most likely to drop out of treatment. Third, when parents are asked to report changes in the child's problem behavior they predominantly will be guided by the actual level of problem behavior, indicating that for evaluative purposes this information may not be very valid. Therefore, to obtain a more reliable picture of changes it would be more effective to use standardized measurements. Fourth, the finding that not only parent ratings but also teacher ratings of problem behavior are predictive of the need for help and the likelihood to complete treatment, indicates that the perception of the teacher on the child's behavior may not be disregarded. Fifth, the comparable pretreatment and at one-year follow-up levels of problem behavior for dropouts and ongoing patients suggest that other factors than the seriousness of the problems determine whether children and adolescents receive mental health services. Our results suggest that ongoing family problems may be a reason to drop out. Thus, extra attention to family problems in treatment may reduce the likelihood of dropping out. This suggestion is supported by the study of Prinz and Miller (1994), who found that families with an aggressive child who received enhanced family treatment with a focus on both parenting and other family and adult concerns were less likely to drop out than families who received treatment focused exclusively on parenting. Finally, although the main reasons for referral were emotional and / or behavioral problems of the child, one year after referral almost a quarter of the parents reported that they needed help for family functioning. Since both the father-child and the mother-father relationship are predictive of this need for help, clinicians should be extra attentive to families characterized by negative family relationships.

CHAPTER 8

Discussion

The central aims of the present project were to examine: (1) the assessment of family functioning; (2) the relationship between child and family characteristics and child problem behavior among referred children and adolescents aged 9 through 16 years; (3) the one-year course of child problem behavior in a clinical sample; (4) the one-year course of family functioning in a clinical sample; (5) the effects of child characteristics, family functioning and the changes herein, and stressful life-events on the course of problem behavior; (6) the bidirectional relations between family functioning and child problem behavior across time; and (7) the one-year outcome of this referred sample. In this chapter first the main findings and conclusions of our research project will be presented. Then, in separate sections, theoretical, research, and clinical implications of this study will be discussed.

Assessment of Family Functioning

The functioning of a family, consisting of one or more adults and one or more children, can be assessed at different levels, including the marital relationship, the parent-child relationship, the sibling relationship, triadic relationships and higher-order relationships and the whole family. Family research has predominantly focussed on associations within and across dyadic family relationships, whereas whole family functioning is less studied. The lack of attention to studying whole family functioning is probably due to the difficulty of measuring characteristics of the larger family system (Cox & Paley, 1997). In the present study we examined aspects of functioning of the family as a whole (using the FDS) and of the distinguishing family relations, i.e., the mother-child, the father-child, and the mother-father relationship (using the NFRT).

Whole Family Functioning. It is important to keep in mind that individual family members' perceptions are by definition not appropriate to draw conclusions about the larger family system. Consequently, to obtain a more comprehensive picture of the family individual perceptions need to be combined. Several ways of computing family scores are possible, including the family mean and the family discrepancy score.

The comparison of individual family members' scores on the FDS dimensions cohesion and adaptability versus composite family scores, reported in chapter 2, demonstrated that the family mean scores were more strongly related to parent-rated problem behavior than did the individual perceptions. In contrast to the family mean scores, the discrepancy scores were not associated to child problem behavior, indicating that in order to get a clearer view of family functioning regarding its relationship with child problem behavior studying discrepancies in perceptions between individual family members is not very valuable.

The analyses presented in chapter 2 indicate that while for the dimension cohesion combining individual perceptions into a composite family mean score is adequate, aggregating individual percipiences on the dimension adaptability is at least questionable. This conclusion is further confirmed by post-hoc longitudinal analyses on our FDS data, in which we tried to measure a latent family factor based on the individual family members' perceptions. These analyses demonstrated that the child's perception on adaptability had a significant contribution to Time 1 family adaptability but it did neither contribute significantly to the Time 2 nor to the Time 3 family adaptability score. Moreover, errors of variance of fathers' adaptability scores were negative, indicating that the model under consideration was likely misspecified. Together, these results indicated that the proposed underlying family factor is not present in individual adaptability scores. Presumably, these scores are only reflective of subjective perceptions and not very useful to provide information about the variable adaptability at the family system level.

By contrast, although the child's contribution to the family cohesion score was rather low, it was significant across all three assessments. The loadings ranged from .32 to .46 for children, from .75 to .79 for mothers, and from .55 to .68 for fathers, indicating that mothers' reports of cohesion were the most and children's reports were the least reliable. Moreover, these longitudinal findings show that with regard to cohesion a self-report questionnaire of

family functioning not only reflects individual perceptions, but that there are also some common perceptions between different family members.

The difficulty of examining whole family functioning is clearly demonstrated by the relatively low reliabilities reported for the family experience questionnaire used in the present project, which aimed to measure system features, i.e., cohesion and adaptability. Presumably, these relatively low reliabilities can be attributed to the hard task for family members to try to form a total picture of the family, in which they must take the feelings and experiences of all individual members into account (Oud, 1990).

Family Relations. The value of studying family relations as opposed to whole family functioning was demonstrated in different ways. First, compared to the FDS higher reliabilities for the family relationship questionnaire (NFRT) were found for parents' as well as children's reports. Second, in general, family relations showed larger associations with child problem behavior than aspects of whole family functioning. Third, distinguishing relationships were observed for the different family dyads and child problem behavior, with consistently stronger associations between the mother-child relationship and Externalizing behavior and stronger linkages between the marital relationship and Internalizing behavior. Fourth, it was possible to study family patterns on basis of the combination of dyadic relationships.

Our results clearly demonstrated the cumulative effect of negative family relationships on child problem behavior, viz. children living in a family with a larger number of negative dyadic relationships were more likely to exhibit higher levels of problem behavior. No indications were found for a linkage between a cross-generational coalition in which one of the parents attempts to form an alliance with the child against the other parent (Minuchin, 1974), and child problem behavior.

In conclusion, examining family relations in referred children and adolescents is highly valuable. Especially, in order to explain the association between family relations and child psychopathology defining a risk index based on the quality of different relationships within the family is very worthwhile. However, we should also conclude that the cross-generational coalition can not adequately be operationalized by family relationships as we have measured

them in the present project. Family relations as measured with the NFRT are necessarily limited to the positive aspects of the cross-generational coalition without the possibility to take the more ambivalent features of the relationship into account.

Given the relatively low reliabilities for the dimensions of cohesion and adaptability together with the quite unclear meaning of adaptability, we decided to use only family relation scores in the longitudinal analyses of the present project. However, it is important to note that we did not aggregate the different dyadic family relationships in each of our longitudinal analyses. Different motives have played a part in this decision. First, the clinical sample in the present project was not selected on the presence of two parents. Thus limiting our attention to only the two-parent families, merely in order to be able to define family patterns, would have resulted in less generalizability of our results to clinical samples. Second, since less is known about the course of family relationships after referral, studying dyads seems to be a prerequisite before examining the course of more complex processes within the family.

Factors Associated with Problem Behavior

A second question of this study regarded the cross-sectional associations between child characteristics and aspects of family functioning and child problem behavior. Because teacher ratings of problem behavior were hardly related to the factors we have studied, the results and conclusions mentioned below apply only to parent ratings.

Significant associations with child problem behavior were found for sex, temperament and level of intelligence. Moreover, our study clearly demonstrated that both aspects of the family as a whole and of the different family relationships were cross-sectionally related to Internalizing as well as to Externalizing behavior, with generally stronger associations for Externalizing problems.

As might be expected from results of many other studies (e.g., Cohen et al., 1993; Gabel, & Shindledecker, 1991; Offord et al., 1987; Velez, Johnson, & Cohen, 1989; Verhulst et al., 1996) boys exhibited more Externalizing behavior than girls. While externalizing behavior is more prevalent among preadolescent boys, internalizing disorders are about equal for preadolescent boys and girls. Although our sample consisted of both preadolescent and adolescent boys and girls, the majority (62.3%) of the children in the present project were

younger than 12 years.

The relatively high associations between temperament and initial levels of Total Problems, Internalizing as well as Externalizing behavior suggest that temperament is an important risk factor for the development of problem behavior. One might argue that there will be some overlap between problem behavior and temperament due to the simultaneous use of parent ratings. However, there were also apparent distinctions between both variables. Most importantly, if both variables measure the same construct, we would not have found independent effects of intelligence and family relations in addition to temperament on the initial level of problem behavior. However, we realize that for future research it would be of great relevance to examine in more detail the items used to measure temperament and exclude those items which show a high degree of similarity with items used to assess problem behavior (Wertlieb, Weigel, Springer, & Feldstein, 1987).

As expected, the level of intelligence was more strongly related to Externalizing behavior than to Internalizing behavior (Goodman, 1995). The level of intelligence was associated with the initial level of Externalizing behavior as well as Total Problems, indicating that children with lower intelligence exhibited higher levels of problem behavior.

In this study, the parent-child relationship was more strongly associated with child problem behavior than the marital relationship and aspects of whole family functioning. Moreover, when the effects of other family relations were controlled for, especially the mother-child relationship was linked to Externalizing behavior. The explanation for these results is likely to be found in differences in the proximal nature of the variables to the child. That is, the direct involvement of the child in the relationship with the mother will result in direct influences from this relationship to the child. Conversely, the marital relationship and overall family functioning are more distal to the child and will as a consequence have less direct effects.

However, the roles of the marital relationship as well as the father-child relationship should not be disregarded. After controlling for both parent-child relationships, the marital relationship appeared to be associated with the child's Internalizing behavior. Moreover, placing demands on one another in the mother-child as well as in the father-child relationship were independently linked to Externalizing problems in the child. Finally, our findings gave clear support for the cumulative risk model, namely having more negative family

relationships was associated with child problem behavior.

In sum, since associations between family functioning and child problem behavior were observed for parent and child perspectives on aspects of family functioning, a considerable degree of confidence can be placed on the existence of a real linkage. Additional support for this conclusion was found in the fact that family functioning remained associated with child psychopathology even after the contribution of child characteristics had been partialed out.

The Course of Problem Behavior

Although it would have been possible to combine parent and teacher ratings of the child's problem behavior, we decided not to do so. Since we did not obtain a TRF for each child, the aggregation of CBCL and TRF scores would have resulted in a considerable loss of subjects. Accordingly, the power to detect associations would have been reduced. Moreover, it can be demonstrated that child problem behaviors can best be conceptualized as informant-specific phenomena (Offord et al., 1996).

Large half-year and one-year stabilities for parent-rated problem behavior, and small to medium stabilities for teacher-rated behavior were found. However, it is important to note that in only 12% of the cases the TRF was completed by the same teacher each time. Besides, on average, children showed improvements in mean levels of psychopathology across a one-year interval, except for teacher-rated Externalizing behavior. Moreover, we observed interindividual differences in rate of change for both CBCL and TRF Total Problem and Externalizing scores.

Since we controlled for measurement error, by using latent growth models, the decreases in the mean level of problem behavior can be considered real. Moreover, because decrements were reported by parents as well as by teachers we may conclude that overall the behavior of the children has really ameliorated one year after referral.

However, it is important to keep in mind that these statistical effects do not specify whether the observed changes are also meaningful (Jacobson & Truax, 1991). Actually, although comparison with a large clinical sample revealed that, on average, one year after referral our sample scored significantly better on CBCL Total Problems, they had still significantly higher levels of problem behavior than children in the general population (i.e.,

more than one standard deviation above the population mean). Moreover, about 53% of the children still scored above the clinical range, i.e., the 90th percentile of the norm group (Verhulst et al., 1996), indicating that the majority of the children will probably still suffer from impairments in their everyday functioning. Besides 35% of the children still scored above the clinical range on teacher ratings of problem behavior (Verhulst et al., 1997).

The observed interindividual differences in rate of change in problem behavior indicate that despite the general decrease in the level of problem behavior not all children will improve at the same rate. Strikingly, while we did not find interindividual differences in linear changes for Internalizing behavior in the subsample of two-parent families, such differences were observed when performing analyses using the subsample of mother-child dyads. Probably, the inclusion of more children in the sample has increased the chance of observing differences between children.

We found no significant associations between initial level of problem behavior and rate of change. This indicates that the severity of problem behavior at intake is not necessarily related to its course across time. This applies especially to both parent and teacher ratings of Total Problems and Externalizing behavior. However, post-hoc analyses on the subsample of mother-child dyads demonstrated a small but significant negative association between the initial level and the course of CBCL Internalizing across time ($t = -2.03, p \leq .05$), indicating that children with an initially higher level of Internalizing problem behavior tended to improve at a somewhat faster rate than those with a lower level. This finding may explain the generally lower stability for Internalizing, in comparison with Externalizing behavior.

The Course of Family Relations

Medium to large half-year and one-year stabilities for each of the relationships, i.e., the mother-child, the father-child, and the mother-father relationships were found. On average, the stability coefficients for child-ratings were somewhat lower than for parent ratings. Besides, children reported an overall improvement of their relationship with mothers and a minor improvement of their relationship with fathers. Fathers reported a significant increase in restrictiveness in the relation with their children, across a one-year interval. Moreover, interindividual differences in rate of change were observed for both parent-child relationships.

The relatively high stabilities for family relations as rated by both parents and children clearly indicate that the quality of family relations at intake is highly predictive for the quality of family relations one year later. Contrary to child problem behavior, family relations, especially marital relationships, change relatively little across a one-year interval, indicating a large degree of persistence in the quality of dyadic relations within the family.

The observed significant interindividual differences in rate of change for the mother-child and the father-child relationship, indicate that despite the high stability some relations will do worse, whereas others will improve or remain the same. Therefore, we may conclude that parent-child relationships are likely more flexible than the marital relationship. Moreover, the overall improvement in the mother-child relationship as rated by the child, demonstrates that this dyad is probably the most amenable to change.

The non-significant associations between initial quality of family relations and rate of change for parent ratings, indicate that the quality of family relations at intake is not necessarily related to their course across time. However, for child ratings, the degree of changes could partly be explained by the quality of the parent-child relationship at intake, viz. initially low qualitative relationships will improve at a somewhat faster rate than initially high qualitative relationships.

Factors Associated with the Course of Problem Behavior

Since we did not observe any significant predictors for the course of teacher ratings of child problem behavior, the results and conclusions discussed below apply only to parent ratings.

Stressful life-events occurring between intake and 1 year follow-up appeared to have a significant influence on interindividual differences in rate of change of Total Problems as well as of Externalizing behavior. About 20% of the variance in the rate of change in problem behavior was accounted for by stressful life-events. Moreover, an additional 7% of the variance in the rate of change in Total Problems was explained by the interaction effect of temperament and stressful life-events, indicating that children with a difficult temperament react more strongly to stressful events than children with an easy temperament. Neither one of the investigated child characteristics, i.e., sex, age, temperament and level of intelligence nor

the quality of family relations had significant main effects on the course of problem behavior across a one-year interval.

Stressful life-events compel children to adapt to new circumstances and tax their resources, in terms of support and coping strategies (e.g., Holahan & Moos, 1987). Our findings clearly demonstrate that children with already developed problem behavior experience difficulties dealing with stressful life-events, independently of possible support received from the family. The strong observed effect of stress on changes in child problem behavior also underscores the importance of studying clinical samples, because only in this type of sample the effect of stress on the course of already existing problems can be detected.

Although the child's temperament had no main effect on the course of problem behavior, we did observe an interaction effect between stressful life-events and temperament, implying that the negative impact of stressful life-events on the course of Total Problems can, at least partly, be canceled out by an easy temperament. Probably, the high adaptability to changes, which is one of the characteristics on an easy temperament (Thomas & Chess, 1977; Windle & Lerner, 1986) prevents the child from being overwhelmed by stressful life-events.

Our results indicate that the child characteristics: sex, temperament, and level of intelligence as well as the quality of family relations are helpful in understanding initial levels of problem behavior, but they do not tell very much which children will most likely show changes in problem behavior.

Until now, the influence of sex on already developed problem behavior remains unclear. The few studies which have examined this influence have mainly concentrated on externalizing behavior and have revealed inconsistent findings. First, while the literature review by Offord and Bennet (1994) suggested a stronger persistence of externalizing behavior in boys versus girls, the review by Blotcky, Dimperio, and Gosset (1984) implied a better prognosis for boys versus girls. Our finding that sex was not prognostic for the rate of change in problem behavior together with the finding that boys had higher levels of Externalizing behavior at intake implies that, despite the decrease in the level of problem behavior, one year after referral boys were still scored higher on Externalizing behavior than girls.

In spite of evidence for differential developmental trajectories for children with an earlier

age of onset versus a late onset of both internalizing and externalizing behavior, with better prognosis for the late starters (e.g., Kovacs, Feinberg, Crouse-Novak, Pauluaskas, & Finkelstein, 1984; Loeber, 1982; Patterson, 1993), we did not detect differences in the course of problem behavior depending on the child's age. However, it is important to note that the child's age at referral is likely not equivalent to age of onset of problem behavior. Obviously, age at referral may be influenced by factors, such as parents' and / or teachers' discomfort with the child's behavior, academic problems and family stress (e.g., Costello & Janiszewski, 1990; Verhulst & Van der Ende, 1997), indicating that per definition onset of problem behavior should not have to coincide with referral to mental health services.

Our hypothesis that more intelligent children would show larger decreases in problem behavior than less intelligent children was not supported by the results. Several explanations could be given for this finding. For example, different treatment approaches can have different influences on the child's behavior depending on level of intelligence. Since it has been demonstrated that more intelligent children are more likely to recognize and understand their own and other person's emotions (Cook et al., 1994), these children will maybe also gain more insight in their own problem behavior and its possible consequences, which can accordingly lead to changes in behavior. Therefore, it is not inconceivable that interventions aimed at enhancing the child's understanding of its behavior have greater influence on the more intelligent children. However, because this was not an intervention study and treatment method was not controlled for, this suggestion could not be tested. Moreover, it is also possible that our follow-up period was too short to detect differences in the course of problem behavior depending on the child's level of intelligence.

Our finding that family functioning had no effect on the rate of change in already existing problem behavior, is in keeping with the results of Richman, Stevenson, and Graham (1982). These researchers observed that family factors, measured when the children were 3 years old had an influence on the development of problem behavior 5 years later, whereas family factors had not an effect on the outcome of problem behavior once established.

It seems that the observed cross-sectional associations between family relations and child problem behavior are a resultant of the history both children and their parents have with each other. This suggestion is highlighted by the findings of Anderson et al. (1986), who found that

mothers were more negative with their own conduct disordered son than with an unfamiliar conduct disordered boy, emphasizing the important influence of the history of the parent-child relationship on current interactions.

Rates of change in family relation scores were not associated with rates of change in child problem behavior scores, indicating that both variables have their own developmental course. Probably, after psychopathology has become well established minor changes in family relations may not do much to affect the disorder (Rutter, 1994). However, the non-significant association also indicates that considerable changes in the child's behavior are not immediately followed by changes in the family. Probably, the family needs more time to adapt to alterations in the child's behavior.

Yet, after controlling for earlier problem behavior and family relations, effects of both family relations to internalizing and vice versa were found, whereas, for externalizing behavior only effects from the child's behavior to family relations were observed.

The high stabilities of internalizing and externalizing behavior imply that both types of problem behavior maintain themselves. However, it is important to note that internalizing problems are also determined by family relations, namely the mother-child and the father-child relationship. These results obviously demonstrate that the higher cross-sectional associations found for externalizing problems will not automatically lead to also higher predictive relations across time.

Theoretical Implications

Family characteristics have been given a primary role in most psychological and sociological theories concerning the development and maintenance of child problem behavior (e.g., Dadds, 1995; Hetherington & Martin, 1986; Jacob & Tennenbaum, 1988). The results from the present project suggest that different explanatory models are needed to explain: (1) the development of problem behavior; and (2) the course of already existing problem behavior. More specifically, different theoretical models are probably necessary to explain the course of already identified internalizing and externalizing behavior.

Theoretically, the relation between family functioning and the child's externalizing problem behavior is described in more detail than for internalizing problems (e.g., Frick &

Jackson, 1993; Lytton, 1990; Patterson, 1982). Our results suggest that family functioning plays a significant role in the onset of problem behavior, especially externalizing problems. However, once developed it seems that family functioning plays a more significant role on the course of internalizing in comparison with externalizing behavior.

The observed linkages between the distinguishing family dyads and internalizing behavior, i.e., both influences of the child's behavior to family relations and vice versa, indicate that complex processes take place within the family. Consequently, theories are needed that adequately reflect the interdependency between family relations, leading to change in internalizing problem behavior (e.g., the mother-child relationship may act as a mediator or moderator of the association between the father-child relationship and internalizing problems). Since in interpersonal theories of adult depression the reciprocal association between family variables and depression is emphasized (Coyne et al., 1987; Downey & Coyne, 1990), these theories provide useful leads for possible extension to children's and adolescents' internalizing behavior.

Theories have long focused solely on the mother as the important parent contributing to the child's problem behavior (Phares & Compas, 1992). Although since the 1970s there has been a growing number of studies considering also the role of fathers in child development (White & Woollett, 1992), these investigations have primarily been concentrated on normal development. The findings in the present project demonstrate that in theories explaining the course of already identified child problem behavior also father's influence has to be included, particularly for internalizing problems.

Moreover, it is important to keep in mind that both internalizing and externalizing problem behavior are multifactorially determined and models aimed at explaining problem behavior should include multiple aspects, accordingly. Moreover, to evaluate existing theories and develop integrated theories, several theoretical positions and possible operating mechanisms, such as the mediating role of the parent-child relationship between the marital dyad and problem behavior, the cumulative stress model, the cross-generational coalition, and genetic predisposition, should be tested.

Research Implications

The present research project provides important recommendations for future research. First, we used a one-year follow-up design with two six-months intervals. However, we should realize that intervals of longer or shorter duration might result in different prospective effects. On the one hand, it seems to be valuable to use shorter time intervals, to get more insight in the dynamic process between family relations and child problem behavior. However, it appears to be also worthwhile to use longer time intervals, because a cause needs some time to exert an effect (Gollob & Reichardt, 1987). This seems especially the case for internalizing behavior, for which we did not observe an effect from Time 1 mother-child and father-child relationship on Time 2 problem behavior, whereas we did find an indirect effect from Time 1 parent-child relationships to Time 3 child internalizing behavior. Moreover, long-term follow-up assessments are needed to examine whether family relations will change after all and whether the current ongoing patients will become either completers or dropouts.

Second, given the consistent cross-sectional associations between family relations and child problem behavior it is of great interest to study the longitudinal associations between both variables in younger children, in order to get a more comprehensive understanding of how the linkage has arisen. Moreover, analyses of reciprocal relations in other age ranges would be valuable in tracing the possibly changing pattern of reciprocal effects across development.

Third, it is of critical importance to study the associations between family relations and internalizing as well as externalizing behavior in both general population and referred samples. Examining this linkage in non-clinical samples provides useful information on the development of problem behavior, whereas the assessment of this linkage in clinical samples yield valuable information on the course of existing problem behavior.

Fourth, in order to adequately study real changes latent growth analyses as used in the present project are very useful. However, it is important to notice that to evaluate trends in change three waves of data is the minimally required number of assessments. Moreover, collecting more waves of data will increase the reliability of change measurement (Willett, 1989).

Fifth, the use of latent variables has the advantage that measurement errors present in

observed variables can be taken into account. Consequently, the use of latent variables in future research will give 'cleaner' estimates of effects between variables, i.e., between family functioning and child problem behavior.

Sixth, although a self-report measurement such as the NFRT is a fruitful source of information about family relations, including perceptions, attitudes, and beliefs (e.g., Hetherington & Martin, 1986), it is important to note that especially for the assessment of whole family interaction and of family patterns, such as a cross-generational coalition and scapegoating (e.g., Minuchin, Rosman, & Baker, 1978; Vogel & Bell, 1968), this questionnaire is not very appropriate. Therefore, it is of particular relevance to include also observational methods in future studies.

Seventh, if the aim of research is to detect subtle and / or immediate changes in family relationships the NFRT is not appropriate, at least not for parent ratings. Family relations as measured in the present project are likely a resultant of a long history of interactions between family members. Therefore, instruments aimed at assessing more actual interactions or conflicts, instead of more general perceptions about mutual relationships, are necessary to get a more comprehensive insight in both the course of family relations and the dynamic process between family relations and child problem behavior.

Clinical Implications

The findings from this study suggest that referred children and adolescents will show a decrease of problem behavior across a one-year interval, regardless whether they do or do not receive any professional help. Although this finding might suggest that mental health treatment is not necessary other findings show that this conclusion would not be justified. Namely, the children who dropped out prematurely from possible treatment were showing less improvement in problem behavior than the children who completed treatment. Further inspection of our data revealed that this was especially true for externalizing behavior, indicating that it is of critical importance to try to retain children with externalizing behavior in treatment.

The main reasons for dropping out mentioned by parents in our project, i.e., either not seeing the purpose of help, not seeing any improvements of the child's behavior, or otherwise

not being satisfied with the help received, suggest that the help offered did not meet the expectations of parents. Consequently, it seems to be relevant to gain insight in parent's expectations or needs regarding possible help in a early phase, either in order to gear the intervention to the needs of the parents or to explain what parents might expect. For example, the study by Sik Chung, Pardeck, and Murphy (1995) demonstrated that children are more likely to remain in treatment if the treatment plan is adequately explained. Moreover, our results suggest that especially in the case of severe problem behavior it is not to be expected that considerable improvements will occur immediately after intervention has started. Actually, our findings indicate that treatment will likely have the strongest effects on children with less severe problem behaviors. Finally, the finding that it is not the severity of problem behavior per se which indicates whether a child and its family remain in treatment, is an additional support for the importance of examining the expectations and needs of parents.

Since previous problem behavior is by far the best predictor of later problem behavior, targeting the child's problem behavior should be the most important aim of interventions. Additional support for this suggestion is given by our finding that need for help one year after referral was mainly determined by the level of both earlier and concurrent problem behavior. However, in the treatment of internalizing behavior it is essential to include both the child and its family, in which the role of the mother-child as well as the father-child relationship deserve special attention.

This study also showed that although, in general moderate associations were observed between the level of family relations and the level of problem behavior, ameliorations in child problem behavior will not be followed directly by changes in family relations, at least not within the period of one year, indicating that if the purpose of the clinical intervention is to improve family relations, these relationships should be the direct target of treatment. However, since externalizing behavior has both an influence on the mother-child and on the marital relationship, possibly interventions aimed at reducing externalizing behavior may be effective in improving these family relationships.

Since stress may have a negative influence on the rate of amelioration in problem behavior, for clinical practice it is of great importance to be attentive to stressful life-events and how family members and children deal with these events. Notably, the families who remained for a

longer time in treatment reported more stress. Therefore, enhancing adaptive coping strategies would be an important aim of intervention (Holahan & Moos, 1987).

The finding presented in chapter 7 that parents' retrospective information on changes in the child's behavior was mainly guided by the actual level of problem behavior, indicates that for evaluative purposes in clinical practice this information is not very valid. Consequently, to obtain a more reliable picture of possible changes it would be more effective to use standardized measurements.

Finally, the high stability of child problem behavior, especially externalizing problems, underlines the need for early prevention efforts. Problem behavior, once it is established, shows a strong tendency to maintain itself.

Limitations of the Project

First, it is important to discuss the generalizability of our findings. The present project was based on referred children and adolescents. Data from clinical populations can provide useful information on the outcome of families and children who seek treatment. On the other hand, a clinical sample is likely to be subject to referral bias. Namely, only just a minority of children and adolescents with psychiatric disorders are actually referred to specialist mental health services (Cohen, Kasen, Brook, & Struening, 1991; Costello & Janiszewski, 1990; Offord et al., 1987). For example, children from problem families are likely to be overrepresented in a clinical sample (Verhulst & Van der Ende, 1997). Consequently, our findings and conclusions can most likely only be generalized to referred samples. However, by gathering data at three mental health agencies, our sample is reasonably representative of referred children and adolescents.

Moreover, we should also realize that only 65% of the available families entered in the first assessment of our project. Unfortunately, we had no information whether this group also really differed from the participating group. Besides, across the one-year interval an additional 19% dropped out from our study. However, the dropouts did not differ significantly from remainers on child characteristics, i.e., sex, age, temperament, level of intelligence, family relations, Internalizing and Total Problem scores. Only children with more Externalizing behavior were somewhat more likely to drop out. These results indicate that our results are

probably generalizable to referred families well-disposed to participate in scientific research.

Our sample was selected on basis of children's and adolescents' referral. Consequently, the sample consisted of both two-parent and one-parent families. However, it is not inconceivable that family structure may have an influence on the course of problem behavior (e.g., Vaden-Kiernan, Ialongo, Pearson, & Kellam, 1995). Although post-hoc analyses on our data revealed no influence of family structure, the relatively small sample size of one-parent families prevents us from drawing firm conclusions about possible differences in the course of problem behavior between two-parent versus one-parent families.

One obvious limitation of our focus on parents and their referred child was its exclusion of additional children, which eliminated questions about sibling subsystems. However, since significant variations in experience for siblings within the same family may exist (e.g., Rutter, 1994) this information could be highly important. Moreover, siblings may have also an impact on each other. For example, in the study by Duncan, Duncan, and Hops (1996) it was demonstrated that whereas parents' and adolescents' changes in the use of drugs were not related to each other, the developmental trajectories of adolescents and their siblings were quite similar and were also significantly associated with each other.

Another limitation was that we did not account for relationships outside the family, such as peer relationships. There is cumulative evidence of a link between poor peer relations, such as rejection, not having a best friend, and involvement with antisocial peers, and both internalizing and externalizing behavior (Parker, Rubin, Price & DeRosier, 1995). Moreover, Duncan, Duncan and Hops (1994) observed that both family and peer variables were related to initial level of alcohol use in adolescents, while only peers had an influence on changes in level of use.

Finally, this was not an intervention study and possible treatment was neither systematically assessed nor controlled for. Consequently, we could not examine the impact of specific types of treatment on changes in child problem behavior and family functioning. It should be evident that for accurate assessment of the impact of interventions all treatments have to be carefully defined and delivered, such as type of treatment received, intensity, duration, and expertise of mental health workers.

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Conclusions

Although, our project faces some limitations and future research is patently needed, it has strong features and important conclusions could be drawn. To our knowledge, this was the first longitudinal study in which the bidirectional effects between family relations and internalizing as well as externalizing behavior have been examined. Our project was unique in using multiple reporters for both aspects of family functioning and child problem behavior. Moreover, by using a three-wave longitudinal design we were able to investigate trends in the course of child problem behavior as well as in family relations. Finally, using latent variables instead of measured variables gave a more reliable estimation of the 'true' association between family relations and child psychopathology.

Our results obviously demonstrate that, in order to understand emotional and behavioral problems of children and adolescents, it is of particular importance to make a distinction between factors associated with the development of problem behavior and factors associated with the change in problem behavior once developed (e.g., Cohen & Brook, 1987; Offord et al., 1992).

Moreover, despite the strong cross-sectional associations between family relations and externalizing behavior we might not expect that the child's behavior changes as a consequence of the initial quality or the change in the quality of family relations, at least not across a one-year interval.

Until now, surprisingly little attention has been paid to the possible linkage between family functioning and internalizing disorders (Fauber & Long, 1991). However, on the basis of our findings we should conclude that this lack of notice is not justified. Both the mother-child and the father-child relationship are prospectively related to internalizing behavior, indicating that the parent-child relationship can play a significant role in interventions aimed at reducing internalizing problems. However, considering our results, it appears critically important to attempt early prevention and early treatment, before the child's behavior has stabilized and accordingly will be less susceptible to influence from external factors.

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Summary

The primary objective of the present research project was to examine the causal relation between the course of family characteristics and the course of problem behavior in children and adolescents referred to outpatient mental health services. In chapter 1 the research questions were presented: (1) what are reliable and valid ways to assess aspects of family functioning, what are reliable and valid ways to aggregate family members' perceptions on whole family functioning and family relations into composite scores, (2) to what extent are child characteristics and aspects of family functioning cross-sectionally associated with problem behavior among referred children and adolescents aged 9 through 16 years, (3) what is the one-year course of child problem behavior in a clinical sample, (4) what is the one-year course of family functioning in a clinical sample, (5) to what extent are child characteristics, family functioning and the changes herein, and stressful life-events predictive for the course of problem behavior, (6) are family functioning and child problem behavior bidirectionally related to each other across time, and (7) what is the one-year outcome of this referred sample?

In chapter 2, two different ways of aggregating individual family member's perceptions on the dimensions cohesion and adaptability into composite scores of family functioning, i.e., the family mean and family discrepancy score were studied. Moreover, we compared the individual scores and the scores aggregated at the family level regarding their relationship with child problem behavior. Family mean scores explained more of the variance in CBCL problem behavior scores than did the individual perceptions about the family, especially in comparison with children's scores. Contrary to the family mean score, the family discrepancy score did not explain a statistically significant proportion of variance in any of the child problem behavior scores.

In chapter 3 the relative association between the mutual mother-child, father-child, and mother-father relationship and child problem behavior as perceived by parents as well as teachers were examined. Especially, the mother-child and the mother-father relationship were linked with parent-rated child psychopathology. Strikingly, both dyads had a differential relation with the distinguishing aspects of problem behavior. Whereas the mother-child

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relationship was consistently more related to parent-rated Externalizing behavior, the mother-father relationship was only associated with parent-rated Internalizing behavior.

Moreover, in chapter 3 the association of various patterns of family relations based on the combinations of the marital and both parent-child relationships, i.e., the cumulative risk model, the protective model, and the cross-generational coalition, with child problem behavior were studied. The findings gave clear support for the cumulative risk model; having more negative family relationships was linked with higher parent-rated problem behavior. Furthermore, it was demonstrated that in case of a poor marital relationship the parent-child relationship can play a protective role, i.e., having one or two positive parent-child relationships was related to less parent-rated child psychopathology. No support was found for the cross-generational coalition hypothesis.

The half-year and one-year stability and change of parent- and teacher-rated child problem behavior were described in chapter 4. Large stabilities for parent-rated problem behavior, and small to medium stabilities for teacher-rated problem behavior were found. Additionally, significant decreases in the level of problem behavior were observed. However, this drop was not sufficient for most children to score below the borderline range. Actually, average Total Problem scores remained more than one standard deviation above the general population mean for both CBCL and TRF.

Children with an easy temperament and living in a family with positive relations exhibited less parent-rated Total Problems, Internalizing, and Externalizing at intake. Moreover, more intelligent children and girls had less CBCL Externalizing scores at intake. The observed interindividual differences in rate of change for both parent- and teacher-reported Total Problems and Externalizing indicated that the course of problem behavior was not the same for all children. Only intermediary stressful life-events had an influence on the rate of alteration in CBCL Total Problems and Externalizing, indicating that children who experienced stressful life-events during the one-year study interval showed an increase in problem behavior. Moreover, an interaction effect of temperament and stressful life-events on the rate of change in CBCL Total Problems was found, indicating that children with a difficult temperament react more strongly to stressful events than children with an easy temperament.

In chapter 5 the half-year and one-year stability and change of dyadic family relation

scores, i.e., the mother-child, the father-child, and the marital relationship as reported by each of the different family members were reported. The results indicated medium to large stabilities for family relationship scores across a one-year interval, with the lowest stability coefficients for child ratings. Children reported an overall improvement in their relationship with mothers and a minor improvement in their relationship with fathers. The quality of family relationships at intake was associated with the level of problem behavior, indicating that high restrictiveness and low justice in the mother-child, father-child as well as in the marital relationship were related to more problem behavior. Moreover, low trust in both parent-child relationships and low recognition in the father-child relationship were associated with a higher level of child problem behavior.

Interindividual differences in rate of change were observed for justice in the father-child dyad, and for recognition and trust in the mother-child as well as in the father-child relationship, indicating that some parent-child relationships will do worse or remain the same whereas others will improve across a one-year interval. The rate of change in parent-child relationships was not associated with the rate of change in child psychopathology.

In chapter 6 the cross-sectional and cross-lagged effects between the mother-child, the father-child, and the marital relationship and both internalizing and externalizing behavior were investigated. The cross-sectional stability models indicated more associations with family relations for internalizing than for externalizing behavior. Both effects of family relations on internalizing behavior and vice versa were found, whereas for externalizing behavior only unidirectional effects were observed, i.e., from the child's behavior to family relations. Actually, Time 2 mother ratings of her relationship with the child had an influence on internalizing behavior, and internalizing behavior at Time 3 had an influence on the mother-child relationship. Time 3 father and child ratings of their mutual relationship had an influence on the child's internalizing problems. Moreover, Time 3 internalizing problems had an effect on the marital relationship as judged by fathers. Finally, Time 3 externalizing behavior had an influence on both the mother-child and the father-mother relationship.

Only few cross-lagged influences between family relations and child problem behavior were found. Child ratings of the father-child relationship at Time 2 were predictive for internalizing behavior at Time 3, indicating that children having a less positive relationship

with their fathers at Time 2 had a higher level of internalizing behavior six months later. Furthermore, a high level of internalizing and externalizing behavior at Time 2 had a negative influence on the father-rated marital relationship at Time 3.

Chapter 7 concerned the one-year outcome of the referred children and adolescents in the present research project, in terms of perceived changes in problem behavior and family functioning, need for professional help, and the treatment status. Parents reported an improvement in the child's behavior as well as in family functioning, with more positive changes for child problem behavior. Changes in problem behavior as perceived by the parents were moderately associated with changes reported on the CBCL. Moreover, parents' retrospective information on alterations in child psychopathology was mainly determined by the actual child's behavior. Parent-perceived changes in family functioning were only associated with mother ratings of her relationship with the child on the Nijmegen Family Relations Test.

About respectively, 40% and 21% of the families reported that they needed professional help for the child's behavior and family functioning one year after referral. The need for help for the child's problems was mainly determined by the severity of problem behavior, whereas the need for help for family functioning was particularly determined by the quality of the father-child and the mother-father relationship.

Children with a high level of problem behavior at intake were more likely to be ongoing patients or dropouts one year after referral. Dropouts had worse outcome than completers of treatment, in terms of higher CBCL Total Problems, after controlling for earlier problem behavior, and in less perceived improvement in problem behavior. Moreover, parents of dropouts reported less positive changes in family functioning than both parents of completers and ongoing patients.

In chapter 8 the main findings and conclusions of the present research project were presented. Besides theoretical, research, and clinical implications of the results were discussed. Our results clearly demonstrated the usefulness of studying family relations as opposed to whole family functioning. First, higher reliabilities for the family relations questionnaire (NFRT) were found in comparison with the family experience questionnaire (FDS). Second, stronger associations with child psychopathology were found for the NFRT

than for the FDS. Third, distinguishing associations can be observed between different family dyads and child problem behavior. Fourth, on basis of the different family relationships family patterns can be defined.

On basis of our findings it was concluded that probably different models are needed to explain: (1) the development of problem behavior; and (2) the course of existing problem behavior. Moreover, different explanatory models are likely necessary to explain the course of already existing internalizing and externalizing behavior. Furthermore, we concluded that the possible influence of fathers has to be included in theories explaining the course of already identified child problem behavior, particularly for internalizing problems.

For future research we recommended to use both shorter and longer time intervals. First, to get more insight in the dynamic process between family relations and child problem behavior it is important to use shorter time intervals. On the other hand, because a cause needs time to exert an effect, it is also worthwhile to use longer time intervals. Moreover, we advised to study the longitudinal associations between family functioning and child problem behavior in younger children and in both clinical and non-clinical samples. Besides, the value of using latent growth analyses and latent variables was emphasized. Finally, we pointed out that it is also critically important to use instruments assessing more actual interactions or conflicts.

Concerning clinical practice it was advised to try to retain all referred children and adolescents in treatment. Targeting the child's problem behavior should be the most important aim of interventions. However, in case of internalizing behavior it is essential to include both the child and its family in treatment. Besides for clinicians it is of great importance to be attentive to stressful life-events and how family members and children deal with these events.

Finally, given the high stability of problem behavior among referred children and adolescents it was concluded that it is critically important to attempt prevention and early treatment, before the child's behavior has stabilized and accordingly will be less susceptible to influence from external factors.

Samenvatting

De belangrijkste doelstelling van het in dit proefschrift beschreven project was het onderzoeken van een causale relatie tussen het verloop van gezinskenmerken en het verloop van probleemgedrag bij kinderen verwezen naar de ambulante geestelijke gezondheidszorg. In hoofdstuk 1 werden de onderzoeksvragen gepresenteerd: (1) wat zijn betrouwbare en valide manieren om aspecten van gezinsfunctioneren te meten, wat zijn betrouwbare en valide manieren om percepties van individuele gezinsleden met betrekking tot het algehele gezinsfunctioneren en gezinsrelaties te aggregeren tot samengestelde maten, (2) in welke mate zijn kindkenmerken en aspecten van gezinsfunctioneren cross-sectioneel geassocieerd met probleemgedrag bij verwezen 9 tot 16-jarige kinderen en adolescenten, (3) hoe verloopt het probleemgedrag van kinderen in een klinische groep over een periode van één jaar, (4) wat is het één-jaars verloop van gezinsfunctioneren in een klinische groep, (5) in welke mate zijn kindkenmerken, gezinsfunctioneren en de veranderingen hierin en stressvolle levensgebeurtenissen voorspellend voor het verloop van probleemgedrag, (6) zijn gezinsfunctioneren en probleemgedrag bij kinderen over de tijd heen gezien bidirectioneel gerelateerd aan elkaar, (7) wat is de één-jaars outcome van deze verwezen groep?

In hoofdstuk 2 werden twee verschillende aggregatie-methoden (het gemiddelde en een discrepantiemaat) bestudeerd om percepties van individuele gezinsleden met betrekking tot cohesie en adaptatie te combineren tot één maat van gezinsfunctioneren. Bovendien vergeleken we individuele scores en scores geaggregeerd op gezinsniveau in hun relatie met probleemgedrag. Gemiddelde gezinsscores verklaarden meer van de variantie in probleemgedrag, gemeten met de Child Behavior Checklist (CBCL), dan individuele percepties over het gezin, met name in vergelijking met de individuele percepties van kinderen. In tegenstelling tot het gezinsgemiddelde verklaarde de gezinsdiscrepantiescore geen enkel significant deel van de variantie in één van de probleemscores.

In hoofdstuk 3 werd de relatieve samenhang onderzocht tussen de moeder-kind-, vader-kind- en moeder-vaderrelatie en probleemgedrag bij kinderen, zoals gepercipieerd door ouders en leerkrachten. Vooral de moeder-kind- en de moeder-vaderrelatie waren gerelateerd aan kinderpsychopathologie, zoals gerapporteerd door ouders. Opvallend was dat beide dyades

een differentiële relatie met probleemgedrag vertoonden. Terwijl de moeder-kindrelatie de sterkste samenhang vertoonde met CBCL Externaliserend gedrag, hing de moeder-vaderrelatie alleen samen met CBCL Internaliserend gedrag.

Bovendien werd in hoofdstuk 3 de samenhang bestudeerd tussen verschillende patronen van gezinsrelaties gebaseerd op combinaties van de huwelijksrelatie en beide ouder-kindrelaties, dat wil zeggen het cumulatieve risicomodel, het protectieve model, en de cross-generationele coalitie, en probleemgedrag bij kinderen. De bevindingen gaven een duidelijke ondersteuning voor het cumulatieve risicomodel; het hebben van meer negatieve gezinsrelaties was gerelateerd aan een hoger niveau van probleemgedrag. Bovendien werd aangetoond dat in het geval van een slechte huwelijksrelatie, de ouder-kindrelatie een beschermende rol kan spelen. Dat wil zeggen, ouders van kinderen uit gezinnen met één of twee positieve ouder-kindrelaties rapporteerden minder psychopathologie bij hun kinderen dan ouders van kinderen uit gezinnen met geen enkele positieve ouder-kindrelatie. Er werd geen bevestiging gevonden voor de cross-generationele coalitiehypothese.

De half-jaars en één-jaars stabiliteit en verandering van door ouders en leerkrachten gerapporteerd probleemgedrag bij kinderen werden beschreven in hoofdstuk 4. De resultaten toonden een hoge stabiliteit aan voor probleemgedrag, zoals waargenomen door ouders en een geringe tot matige stabiliteit voor probleemgedrag, gerapporteerd door leerkrachten. Bovendien werden er significante dalingen in het niveau van probleemgedrag aangetroffen. Deze daling was echter voor de meeste kinderen niet voldoende om beneden de borderlinegrens te scoren. In feite bleek, dat de gemiddelde CBCL en Teacher's Report Form (TRF) Totale Probleemscores meer dan één standaarddeviatie boven het algemene populatiegemiddelde bleven.

Kinderen met een makkelijk temperament en opgroeiend in een gezin met positieve relaties werden, op het moment van intake, lager gescoord op CBCL Totaal Probleemgedrag, Internaliseren en Externaliseren, dan kinderen met een moeilijk temperament en opgroeiend in een gezin met negatieve relaties. Daarnaast vertoonden zowel meer intelligente kinderen als meisjes op het moment van intake minder CBCL Externaliserend gedrag. De gevonden interindividuele verschillen in mate van verandering voor zowel door ouders als leerkrachten aangegeven Totale Problemen en Externaliserend gedrag toonden aan dat het verloop van

probleemgedrag niet voor alle kinderen gelijk was. Alleen tussenliggende stressvolle levensgebeurtenissen hadden een invloed op het beloop van veranderingen in CBCL Totale Problemen en Externaliserend gedrag, indicerend dat kinderen voor wie meer stressvolle levensgebeurtenissen gerapporteerd werden, een vermeerdering van probleemgedrag lieten zien over de periode van één jaar. Daarnaast werd een interactie-effect tussen temperament en stressvolle levensgebeurtenissen en het verloop van verandering in CBCL Totale Problemen gevonden. Dit interactie-effect gaf aan dat kinderen met een moeilijker temperament sterker op stressvolle gebeurtenissen reageren dan kinderen met een makkelijk temperament.

In hoofdstuk 5 werden de half-jaars en één-jaars stabiliteit en verandering van gezinsrelatiescores beschreven. De resultaten lieten een matige tot hoge stabiliteit zien voor gezinsrelatiescores over een één-jaars interval, met de laagste stabiliteitscoëfficiënten voor de rapportages van kinderen. Kinderen rapporteerden een algemene verbetering in hun relatie met moeders en een geringe verbetering in hun relatie met vaders. De kwaliteit van gezinsrelaties tijdens intake hing samen met het niveau van probleemgedrag, indicerend dat een hoge mate van restrictiviteit en een lage mate van rechtvaardigheid in zowel de moeder-kind-, de vader-kind-, als de huwelijksrelatie samenhingen met meer probleemgedrag. Bovendien waren een geringe mate van vertrouwen in beide ouder-kindrelaties en geringe erkenning in de vader-kindrelatie gerelateerd aan een hoger niveau van probleemgedrag.

Interindividuele verschillen in de mate van verandering werden aangetroffen voor rechtvaardigheid in de vader-kinddyade, en voor erkenning en vertrouwen in zowel de moeder-kind- als de vader-kindrelatie. Dit betekent dat sommige ouder-kindrelaties slechter zijn geworden of hetzelfde zijn gebleven, terwijl andere verbeterd zijn over het één-jaars interval. De mate van verandering in ouder-kindrelaties hing niet samen met de mate van verandering in psychopathologie bij kinderen.

In hoofdstuk 6 werden de cross-sectionele en de cross-lagged effecten tussen de moeder-kind-, de vader-kind-, en de huwelijksrelatie en internaliserend en externaliserend gedrag onderzocht. De cross-sectionele stabiliteitsmodellen lieten meer samenhangen zien tussen gezinsrelaties en internaliserend gedrag dan tussen gezinsrelaties en externaliserend gedrag. Zowel effecten van gezinsrelaties op internaliserend gedrag als vice versa werden gevonden, terwijl voor externaliserend gedrag alleen unidirectionele effecten werden gevonden, dat wil

zeggen, van het gedrag van het kind naar gezinsrelaties. In feite had de moeder-kindrelatie, zoals gepercipieerd door moeder, een effect op internaliserend gedrag op tijdstip 2, terwijl internaliserend gedrag, gemeten op tijdstip 3, een invloed had op de moeder-kindrelatie. De vader-kindrelatie op tijdstip 3, zoals gerapporteerd door zowel vaders als kinderen, had een invloed op internaliserend probleemgedrag van het kind. Bovendien hadden internaliserende problemen, gemeten op tijdstip 3, een invloed op de huwelijksrelatie zoals gepercipieerd door vaders. Tenslotte had externaliserend gedrag, gemeten op tijdstip 3, een invloed op zowel de moeder-kind- als de vader-moederrelatie.

Er werden slechts enkele cross-lagged effecten tussen gezinsrelaties en probleemgedrag bij kinderen gevonden. De vader-kindrelatie, zoals gezien door het kind en gemeten op tijdstip 2, was voorspellend voor internaliserend gedrag op tijdstip 3, indicerend dat kinderen die op tijdstip 2 een minder positieve relatie met hun vaders hadden, 6 maanden later meer internaliserend gedrag vertoonden. Daarnaast had een hoog niveau van zowel internaliserend als externaliserend gedrag op tijdstip 2 een negatieve invloed op de door vaders waargenomen huwelijksrelatie op tijdstip 3.

Hoofdstuk 7 had betrekking op de één-jaars outcome van de verwezen kinderen en adolescenten in dit onderzoeksproject. Onderzocht werden de gepercipieerde veranderingen in probleemgedrag en gezinsfunctioneren, behoefte aan professionele hulp en de behandelingsstatus. Ouders rapporteerden zowel een verbetering in het gedrag van het kind als in gezinsfunctioneren, met meer positieve veranderingen voor het probleemgedrag van het kind. Veranderingen in probleemgedrag, zoals gepercipieerd door ouders, hingen matig samen met veranderingen, gerapporteerd op de CBCL. De retrospectieve informatie van ouders over veranderingen in psychopathologie van hun kind werd vooral bepaald door het huidige gedrag van het kind. Veranderingen, gepercipieerd door ouders wat betreft gezinsfunctioneren, hingen alleen samen met de moeder-kindrelatie, zoals aangegeven door moeders op de Nijmeegse Gezinsrelatie Test (NGT).

Respectievelijk 40% en 21% van de gezinnen rapporteerde dat ze professionele hulp nodig had voor het gedrag van hun kind en gezinsfunctioneren, één jaar na verwijzing. De behoefte aan hulp voor problemen van het kind werd vooral bepaald door de ernst van het probleemgedrag, terwijl de behoefte aan hulp voor gezinsfunctioneren vooral bepaald werd

door de kwaliteit van de vader-kind- en de moeder-vaderrelatie.

Een hoog niveau van probleemgedrag tijdens intake bleek voorspellend voor het na één jaar nog in behandeling zijn of om de behandeling vroegtijdig gestaakt te hebben. Degenen, die de behandeling vroegtijdig staakten, waren één jaar na intake slechter af dan degenen, die de behandeling voltooiden. Dat wil zeggen, dat ze hogere CBCL Totale Probleemscores hadden, onafhankelijk van het niveau van eerder probleemgedrag. Hun ouders rapporteerden ook minder verbetering in probleemgedrag. Bovendien meldden ouders van drop-outs minder positieve veranderingen in gezinsfunctioneren dan zowel ouders van degenen, die de behandeling voltooiden als ouders van kinderen, die nog steeds in behandeling waren.

In hoofdstuk 8 werden de belangrijkste bevindingen en conclusies van dit onderzoeksproject gepresenteerd. Bovendien werden theoretische en klinische implicaties en onderzoeksimplicaties van de bevindingen bediscussieerd. Onze resultaten toonden duidelijk de waarde aan van de bestudering van gezinsrelaties in vergelijking met de bestudering van het algehele gezinsfunctioneren. Ten eerste werden hogere betrouwbaarheden aangetroffen voor de gezinsrelatievragenlijst (NGT) in vergelijking met de gezinsbelevingsvragenlijst (GezinsDimensieSchalen; GDS). Ten tweede werden sterkere samenhangen met kinderpsychopathologie gevonden voor de NGT dan voor de GDS. Ten derde werden differentiële samenhangen ontdekt tussen verschillende gezinsdyades en probleemgedrag bij kinderen. En ten vierde was het mogelijk om op basis van de verschillende gezinsrelaties gezinspatronen te definiëren.

Op basis van onze bevindingen werd geconcludeerd dat waarschijnlijk verschillende modellen nodig zijn voor de verklaring van: (1) de ontwikkeling van probleemgedrag en (2) het verloop van reeds bestaand probleemgedrag. Bovendien zijn verschillende modellen noodzakelijk om het verloop van zowel reeds bestaand internaliserend als externaliserend gedrag te verklaren. Daarnaast concludeerden we dat de mogelijke invloed van vaders een plaats dient te krijgen in theorieën, die de ontwikkeling van reeds geïdentificeerd probleemgedrag bij kinderen, vooral internaliserend gedrag, verklaren.

Voor toekomstig onderzoek bevolen we het gebruik van zowel kortere als langere tijdsintervallen aan. Ten eerste is het, om beter inzicht te krijgen in het dynamische proces tussen gezinsrelaties en probleemgedrag bij kinderen, belangrijk om kortere tijdsintervallen te

gebruiken. Aan de andere kant is het ook waardevol om langere tijdsintervallen te gebruiken omdat een oorzaak tijd nodig heeft om invloed uit te kunnen oefenen. Bovendien adviseerden we om de longitudinale samenhangen tussen gezinsfunctioneren en probleemgedrag ook te bestuderen bij jongere kinderen en in zowel klinische als niet-klinische groepen. Daarnaast werd het gebruik van latente-groei-analyses en latente variabelen benadrukt. Tenslotte wezen we erop, dat het van het grootste belang is om instrumenten te gebruiken, die meer actuele interacties of conflicten meten.

Met betrekking tot de klinische praktijk werd geadviseerd om te proberen alle verwezen kinderen en adolescenten in behandeling te houden. Het belangrijkste doel van interventies dient de behandeling van het probleemgedrag van kinderen te zijn. In geval van internaliserend gedrag is het evenwel essentieel om zowel het kind als het gezin in de behandeling te betrekken. Daarnaast is het voor clinici van het grootste belang om alert te zijn op stressvolle levensgebeurtenissen en hoe gezinsleden en kinderen hiermee omgaan.

Gezien de hoge stabiliteit van probleemgedrag bij verwezen kinderen en adolescenten werd tenslotte geconcludeerd dat het van groot belang is om aandacht te schenken aan preventie en vroegtijdige behandeling, ergo voordat het gedrag van het kind zich gestabiliseerd heeft en daardoor minder ontvankelijk is voor invloeden van externe factoren.

Dankwoord

Dit proefschrift is tot stand gekomen dankzij directe en indirecte steun van veel personen. Deze mensen wil ik op deze plaats allen hartelijk danken.

Allereerst ben ik veel dank verschuldigd aan alle ouders en kinderen, die tot drie keer toe in één jaar tijd allerlei vragenlijsten voor het onderzoek wilden invullen.

De secretariaatsmedewerkers en hulpverleners van RIAGG-Rotterdam Zuid, RNO-Capelle, en RIAGG-Delft/Westland ben ik zeer erkentelijk voor hun medewerking en bereidwilligheid om allerlei formulieren voor het onderzoek in te vullen en het doorgeven van namen en adressen van gezinnen, die mee wilden werken.

Dr Hans Koot, ondanks je zeer drukke werkzaamheden kon ik met al mijn vragen en twijfels steeds bij je terecht. De vele uurtjes overleg waren erg inspirerend en motiverend om vol enthousiasme weer door te gaan. Een betere dagelijkse begeleider kun je je niet wensen.

Prof. dr Frank Verhulst, de vrijheid die ik door je 'begeleiding op afstand' mocht ontvangen, heb ik als zeer prettig ervaren. Mede door deze vrijheid heb ik mijn eigen ideeën verder kunnen ontwikkelen en me op 'mijn eigen wijze' kunnen ontplooien tot wetenschappelijk onderzoekster.

Prof. dr Eric De Bruyn wil ik bedanken voor de steun, die ik met name in de beginfase van het onderzoek en bij het schrijven van de eerste artikelen mocht ontvangen.

Dr Han Oud, onze gesprekken prikkelden me steeds om weer eens goed na te denken over wat ik nu eigenlijk wilde met de grote hoeveelheid data die ik bezat. Daarnaast waren onze gesprekken voor mij ook een sterke stimulans om me verder te verdiepen in de mogelijk- en onmogelijkheden van verschillende statistische analyses. Uiteindelijk heb ik op basis van deze informatie een eigen keuze (niet altijd jouw keuze) gemaakt voor de uit te voeren analyses.

De leden van de kleine promotiecommissie, prof. dr J.R.M. Gerris, prof. dr R.W.Trijsburg en prof. dr F. Verheij wil ik hartelijk danken voor hun toezegging om mijn manuscript te beoordelen. Tevens wil ik prof. dr F. Boer en dr J.H.L. Oud bedanken voor hun bereidheid om zitting te nemen in de grote commissie.

Drs. Pauline Hirschhorn heeft als onderzoeksassistente een belangrijke bijdrage geleverd aan de dataverzameling, met name bij de opzet van het onderzoek en het eerste gedeelte van de follow-up. Haar nauwgezette manier van werken, en plezierige omgang met RIAGG-

medewerkers, ouders en kinderen, maakten dat ik zonder enige aarzeling dit deel van het onderzoek aan haar over kon laten.

José Diederiks is het gelukt om mijn vage ideeën voor de voorkant van dit proefschrift om te zetten in een concreet ontwerp. Hartelijk dank hiervoor!

Lieve ouders, jullie onvoorwaardelijke steun en rotsvaste vertrouwen dat alles wat ik aanpak ook tot een goed einde zal brengen, is steeds een sterke stimulans geweest en heeft er ook nu weer voor gezorgd dat mijn doorzettingsvermogen me, bij het afronden van mijn proefschrift, niet in de steek heeft gelaten. Mijn moeder wil ik in het bijzonder bedanken voor al de uurtjes, die ze doorbracht in onze flat om het geheel schoon te houden. Zonder haar hulp was het het laatste jaar vast een vreselijke puinhoop geworden.

En last but not least, lieve Peter, dat ene zinnetje we weten het samen wel, het hoeft niet zwart op wit. Kortom: bedankt!

Tilburg, maart 1998

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Curriculum Vitae

Jolanda Mathijssen werd geboren op 12 september 1964 te Tilburg. In 1981 behaalde zij het H.A.V.O.-diploma aan de scholengemeenschap Durendael te Oisterwijk. Twee jaar later, in 1983, werd het V.W.O.-diploma behaald aan het Odulphuslyceum te Tilburg. Hierna volgde zij de opleiding H.B.O.- Jeugdwelzijnswerk, welke in 1987 met goed gevolg werd afgerond. In 1992 legde zij aan de Katholieke Universiteit Nijmegen het doctoraalexamen pedagogische wetenschappen af, met als afstudeerrichting pedagogische advisering en begeleiding.

Vanaf 1992 tot 1997 was zij als onderzoekster in opleiding, met subsidie van de Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO), verbonden aan de afdeling kinder- en jeugdpsychiatrie van het Sophia Kinderziekenhuis / Erasmus Universiteit Rotterdam (hoofd Prof. dr F.C. Verhulst). Van 1997 tot april 1998 was zij als onderzoekster werkzaam op de bovengenoemde afdeling kinder- en jeugdpsychiatrie. In deze periode (1992-1998) werd een longitudinaal onderzoek naar de invloed van gezinskenmerken op het verloop van probleemgedrag bij kinderen verwezen naar de ambulante geestelijke gezondheidszorg uitgevoerd, waarvan de resultaten in dit proefschrift beschreven zijn.