Family Loyalty and Adolescent Problem Behavior: The Validity of the Family Group Effect

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The present study examined the relation between perceived justice and trust within family relationships and adolescent internalizing and externalizing problem behavior. Data were gathered from the father, the mother, and two of their adolescent children in 288 families. The social relations model was used to assess perceived justice and trust at the family level and the individual level. Adolescent internalizing and externalizing problem behavior turned out to be best predicted at the family level. Adolescents from families with less just or trustworthy climates showed more of these problem behaviors. Also associations between adolescent problem behavior and individual characteristics of the adolescents were found: adolescents who were generally viewed as less just/trustworthy were reported to have more problems. Our findings suggest that processes at different levels of family functioning (i.e., individual, whole-family) should be taken into account when investigating associations between family characteristics and children's outcomes.

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FAMILY LOYALTY AND ADOLESCENT PROBLEM BEHAVIOR: THE VALIDITY OF THE FAMILY GROUP EFFECT

The notion that the family can be conceived as a group entity whose characteristics can be measured has led to the construction of instruments in which family members are asked to rate the family as a whole. Well-known examples are the Family Adaptability and Cohesion Evaluation Scales (FACES; Olson, Portner, & Lavee, 1985) and the Family Environment Scale (FES; Moos & Moos, 1981). The item format used in these instruments is as follows: ''In my family people are nice to each other: yes/no''. However, as argued by Cook (1994), one might doubt whether such items really assess family characteristics. One of the fundamental issues is that in the traditional item format it is still the individual person who assesses the family as a whole. The result is not a family group score in its proper sense but a rating of the family as perceived by one person.

The problem of measures confounding individual and family characteristics is solved in a round-robin measurement design in which each family member rates all other family members. Such a design allows the application of the social relations model (SRM) by means of which the family group effect can be measured unconfounded by other sources of variance. Kenny and La Voie (1984) introduced the SRM as a means of disentangling the different effects involved in interpersonal perceptions. In the nomenclature of the SRM, the term effect refers to the influence of a particular source of variance on perceptions individuals have of one another. Cook and Dreyer (1984) introduced the SRM as a tool to study family relationships, followed by more detailed presentations by Kashy and Kenny (1990) and Cook (1994). Over the last two decades, the SRM has become an increasingly accepted tool to analyze the family system and test theories about family relationships (Branje, Van Aken, & Van Lieshout, 2002; Cook, 1994, 2000, 2001; Cook & Dreyer, 1984; Cook & Kenny, in press; Delsing, Oud, De Bruyn, & van Aken, 2003; Kashy & Kenny, 1990; Manke & Plomin, 1997; van Aken, Oud, Mathijssen, & Koot, 2001). In his consecutive studies of perceived family relationships, Cook found evidence for a family group effect for acquiescence (1993), fear of rejection (2000), and interpersonal influence (2001), but not for effectance (1993) and not for comfort depending (2000).

The theoretical framework for the present study was Boszormenyi-Nagy's clinical family systems theory (Boszormenyi-Nagy & Framo, 1985; Boszormenyi-Nagy & Krasner, 1986; Boszormenyi-Nagy & Spark, 1984; Boszormenyi-Nagy & Ulrich, 1981). This theory explicitly describes the notion of the family as a group entity. Therapists should learn to work with a family, ''as one entity rather than with the summation of the various members' dynamics'' (Boszormenyi-Nagy & Spark, 1984, p. 10). Although

Boszormenyi-Nagy has also pointed to the importance of studying dyadic and triadic relationships within the family, it is the family as a whole that is the focus of the theory (Boszormenyi-Nagy & Spark, 1984).

The key concept in Boszormenyi-Nagy's theory is the concept of Loyalty, which is a summary construct that describes what is believed to be the fundamental evaluative background on which family members depend in perceiving family relationships. According to Boszormenyi-Nagy, interpersonal perceptions of loyalty within the family are the product of the two closely intertwined but distinctive dimensions of Justice (fairness) and Trust (Boszormenyi-Nagy & Spark, 1984). Family members will perceive each other as just when they have the feeling that they treat each other fairly in the context of family obligations. Family members will perceive each other as trustworthy when they have the feeling that they value and love each other. The capacity for experiencing mutual justice and trust is supposed to be learned in the earliest phase of the developing interactions between parents and children. In the terminology of Boszormenyi-Nagy and Spark (1984, pp. 53–54): ''The invisible familial ledger of justice is a relational context, it is dynamically the most significant component of the individual's world, although it is not external to him''. However, this ontogenetic primacy of justice is not reflected in the experiential world of the person. Feelings of both justice and trust are characteristic for psychologically well-functioning families. Therefore, we treated these constructs as facets of the superordinate concept of Loyalty.

Although Boszormenyi-Nagy's theory was one of the founding family systems theories that has had a strong influence on clinical practice (see Wagner & Reiss, 1995), research attempting to measure and validate the constructs is scarce. As a first step in contributing to this enterprise, Oud and Welzen (1989) constructed the Nijmegen Family Relations Test (NFRT), which contains scales that measure perceived justice and trust. The items of the Justice scale were meant to reflect perceived fairness from the perspective of the obligations family members are supposed to experience toward each other within the context of the nuclear family (e.g., ''This person is honest with me'', ''No matter what I do, this person is always dissatisfied with me'', ''I think this person almost always thinks first about himself or herself''). The items of the Trust scale were meant to reflect the extent to which family members value and love each other (e.g., ''This person protects me'', ''This person will really help me when I need him or her'', ''This person likes to help me'').

In previous research, the dimensions of Justice and Trust have been linked to adolescent outcome variables. In a sample of clinically referred adolescents, Mathijssen, Koot, Verhulst, De Bruyn, and Oud (1998) found that Justice and Trust scores within the mother–adolescent dyad were negatively

related to adolescents' externalizing behavior, while Justice and Trust scores within the mother–father dyad were negatively related to internalizing behavior. For the father–adolescent dyad, no such associations were found. Mathijssen et al. also found negative associations between the number of just dyadic relationships within a family and adolescent problem behavior.

The present study extends the study by Mathijssen et al. (1998) in three important ways. First, Mathijssen et al. did not apply the SRM and consequently no comparison could be made between the effect of whole-family and individual characteristics on adolescent problem behavior. Second, all adolescents studied were clinically referred while the present study included a community sample. Although the concepts originated in a family treatment context, Boszormenyi-Nagy's family systems theory was meant to be a theory about family dynamics in general (see Boszormenyi-Nagy & Spark, 1984). Therefore, assessing Boszormenyi-Nagy's focal concepts in a community sample contributes to the testing of the generalizability of the theory. Third, in the study by Mathijssen et al., the hypotheses or expectations were not explicitly based on a conceptual analysis of Boszormenyi-Nagy's theory. The conceptual analysis we presented in this introduction led us to formulate the following hypotheses and expectations.

The first hypothesis was that families could be distinguished from each other on the focal dimensions of Justice and Trust. The testing of this hypothesis was essential. Only when such interfamily variance at the whole-family level existed, we could test the second hypothesis. The second hypothesis was that the interfamily variance at the whole-family level would be more valid in predicting adolescent problem behavior than the interfamily variance at the individual level. More specifically, we expected whole-family levels of justice and trust to be more strongly related to adolescent problem behavior than family members' tendency to perceive others as just/trustworthy or family members' tendency to be perceived as just/trustworthy. This hypothesis was based on Boszormenyi-Nagy's assumption that problem behaviors are mainly rooted in characteristics of the family as a whole, although individual characteristics should not be discarded (Boszormenyi-Nagy & Spark, 1984).

Boszormenyi-Nagy distinguished Justice and Trust as constructs and posited justice as the ontogenetic primary source of family loyalty. Nevertheless, as mentioned before, trust was conceived as the concomitant of justice and therefore we expected both constructs to be positively and highly correlated at the empirical level. Consequently, our third hypothesis was that family scores on these dimensions will show comparable patterns of negative correlations with adolescent problem behavior.

Based on Boszormenyi-Nagy's theory (see Boszormenyi-Nagy & Spark, 1984, p. 176), the fourth hypothesis was that for both justice and trust,

associations with externalizing and internalizing problem behavior were expected to be similar. In other words, we expected scores on Justice/Trust to be about equally strongly related to both internalizing and externalizing problem behavior. The expectation to find no differential patterns of associations between levels of justice and trust on the one hand and internalizing versus externalizing problem behavior on the other was also in agreement with the findings of Mathijssen et al. (1998).

Although we framed our hypotheses in terms of Boszormenyi-Nagy's concepts of Justice and Trust, we recognize that links may exist between these dimensions and other ones that are so richly available in the literature. In recent confirmatory factor analyses (CFA) across self-report family instruments and reporters, Affect was found to be one of the basic dimensions of family functioning (Jacob & Windle, 1999). From our conceptual analysis, it turned out that both justice and trust must be conceived as facets of Loyalty, a superordered concept that clearly belongs to the affective domain. The unique feature of the concept of Loyalty, however, is its ethical orientation on family obligations that are supposed to be the evaluative background for experiencing relationships. This unique ontogenetic ethical connotation distinguishes this construct from the concepts of Trust and Justice as they have been used as focal concepts in other psychological and sociological theories (see Boszormenyi-Nagy & Spark, 1984, but also Berkowitz & Walster, 1976; Folger & Cropanzano, 1998; Kramer, 1999). At the same time, this last observation indicates that the constructs we tried to measure belong to a set of concepts fundamental to the study of human relationships.

METHOD

Participants

The participants were 288 middle-class two-parent Dutch families with at least two adolescent children. One hundred and fifty-four families (53%) had two adolescent children, 79 families (28%) had three children, 33 families (11%) had four children, and 17 families (6%) had five or more children. For five participating families (2%), the total number of children was unknown. The register offices of a representative selection of 23 municipalities throughout the Netherlands provided lists of families with at least two adolescent children between 11 and 15 years of age. Once these families had been informed about the study in writing, interviewers contacted them and verified that two of the children met the age criteria. Both parents and two adolescents from each family were invited to participate in the study. This was done in two phases. Families that were contacted

during the first phase (51% of the total sample) themselves determined which two adolescents would participate in the study. The final goal, however, was to obtain five age cohorts (11, 12, 13, 14, and 15 years) of more or less equal size. Therefore, with regard to the families that were contacted during the second phase, the interviewers invited those adolescents who were needed to complete the age cells. Eventually, 50% of all families contacted and meeting the criteria participated in the study. Reasons for not participating were lack of interest in the topic of the project, or a family member not wanting to cooperate. Two adolescent children per family were included in the study for the purpose of the SRM analyses. The mean age of the fathers ($N = 288$) was 43.9 and of the mothers 41.7 (ranging from 34.0 to 56.1 and from 34.0 to 51.2 respectively). The older children (144 boys, 144 girls) were on average 14.5 years old (ranging from 11.4 to 16.0). The younger children (136 boys, 152 girls) were on average 12.4 years old (ranging from 11.0 to 14.8).

Procedure

After written consent had been obtained from a family, a trained tester made an appointment for a home visit. The measures used in the present study were part of a larger set of questionnaires on family relationships, personality, and adjustment. Parents and children filled in the questionnaires at home, at the same time, but independently, in the presence of the tester. The tester encouraged complete response and prevented collaboration among family members while completing the questionnaires. The items measuring family relationships were presented before the items involving the problem behavior scales. Application of the SRM required the family relationship data to be collected according to a round-robin design, in which each member of the family is asked to express his or her attitude toward each of the other family members. Participants completed each item for all family members before moving to the next item.

Measurements

Family characteristics. Parents and children completed the Justice and the Trust scale from the NFRT (Oud & Welzen, 1989). *Justice* (12 items) refers to the way the balance of giving and taking in the relationship with the other is experienced (e.g., ''This person is honest with me''). *Trust* (13 items) is the extent to which the respondent can count on another family member (e.g., ''This person will really help me when I need him or her''). As we have already mentioned, all family members were asked to rate the

quality of the relationship with each of the other family members. Subjects had to indicate on a 5-point Likert scale ranging from 1 (*not at all true*) to 5 (*completely true*) the extent to which each item was true for each family member. Reliabilities (Cronbach's α) of the Justice scales ranged from .68 for the mother's report on the younger child to .80 for the older child's report on the younger child (average over 12 reports: .74). Reliabilities of the Trust scales ranged from .76 for the mother's report on the older child to .88 for the older child's report on the father (average: .82).

Problem behavior.   To assess adolescents' internalizing and externalizing problem behavior, four scales of the Nijmegen Problem Behavior List (NPBL; Scholte, Vermulst, & De Bruyn, 2001) were used: Withdrawn and Anxious/Depressed Behavior problems (together Internalizing), and Aggressive and Delinquent Behavior problems (together Externalizing). Each scale consists of 5 items. The structure of the NPBL was modeled according to the Child Behavior Checklist (CBCL; Verhulst, Van der Ende, & Koot, 1996). However, in contrast with the CBCL, the NPBL focuses on subclinical instead of clinical problem behavior. The items represent the most common problems in adolescence that cause some concern, but are not serious enough for referral. Examples of items are: "This person would rather be alone than with other people", Withdrawn; "This person feels sad and unhappy", Anxious/Depressed Behavior; "This person does things that could get him/her into trouble with the law", Delinquency; "This person fights a lot", Aggressive Behavior. Parents were asked to indicate on 5-point Likert scales ranging from 1 (*not at all true*) to 5 (*completely true*) the extent to which each item was true for each child. Additionally, adolescents rated their own problem behavior. All correlations between reporters were significant at the .01 level. Internal consistencies with regard to internalizing problems were .88, .87, and .83 on average for father, mother, and adolescent self-reports, respectively. With regard to externalizing problems, internal consistencies were .85, .83, and .80 on average for father, mother, and adolescent self reports, respectively. Father, mother, and adolescent reports on the NPBL were used as indicators of latent problem behavior variables for adolescent internalizing and externalizing problems.

Data Analysis

The SRM.   The family relationship data were analyzed by means of the SRM. According to Cook (1994), the description of one family member given by another family member is a function of four sources of variance:

an actor component, a partner component, a relationship component, and a family component. The actor component refers to the tendency to view others in a certain way. For example, the father actor component with regard to trust reflects the father's tendency to perceive the other family members (mother and children) as equally trustworthy. The partner component refers to how a person is viewed by others in general. The father partner component with regard to trust indicates the extent to which the other family members generally feel they can count on the father. The relationship component refers to an actor's unique adjustment to a particular partner. In our example, the relation-ship component for the father toward the mother represents the extent to which the father perceives the mother as being trustworthy after controlling for the mother's general tendency to be perceived as being trustworthy and the father's general tendency to trust others. The family component refers to characteristics of the family as a whole that affect an individual's perceptions. The family component with respect to trust indicates the general level of trust that family members perceive among each other.

Estimating the SRM components by means of structural equation modeling (SEM).   By means of SEM, measures of the dyadic relationships within the family can be used to estimate the SRM components (Cook, 1994). There are 12 observed relationship measures in a two-parent, two-child family: 4 family members × 3 partners each. These 12 observed measures are the input variables in the analysis of SRM components. An SRM analysis can be viewed as a confirmatory factor analysis in which the SRM components are latent variables (factors) and the relational data are observed variables (Cook, 1994). In contrast with traditional factor analysis (in which the factor variance is fixed at one), the factor variance is estimated while the loadings (i.e., the paths from the latent variables to the measured variables) are all fixed at 1.0. The goal is to find a variance-covariance matrix for the family component, actor components, partner components, and relationship components that is optimally fitting the observed variance-covariance matrix. To implement the estimation procedure, one needs to specify that each of the 12 observed measures loads on the family component as well as on the appropriate actor and partner components. We did not specify relationship components in our model. As a result, the systematic variance in the observed measure that is owing to the relationship component became part of the residual variance (Cook, 1994). In order to partition relationship variance from error variance, two indicators of each relationship factor are necessary. Without two indicators, the relationship factor is not identified.

In our SRM analyses, also two types of reciprocity correlations were estimated: individual reciprocities and dyadic reciprocities (Cook, 1994). Individual reciprocities refer to the correlation between a person's actor and partner component. Such a correlation would in our case indicate that the more a family member views the other family members as just (or trustworthy), the more he or she is perceived by the other family members as being just (or trustworthy). There may also exist reciprocity at the dyadic level of analysis. Dyadic reciprocities refer to the correlation between relationship components (or residual terms) representing two persons' unique relationships with each other. A significant correlation in, e.g., the father–mother relationship would in our case indicate that fathers who see their wives as more just (or trustworthy) have wives who see them as more just (or trustworthy).

In addition to the presence of reciprocity correlations, it has been demonstrated that in four-person (two adults, two siblings) families, intragenerational similarity effects may be present (Cook, 2000). Members of the same generation may share tendencies to perceive the other family members in a certain way, and family members of the same generation may be perceived as similar by the other family members. The SRM allows for the estimation of such intragenerational similarity effects (Cook, 2000). In the present study, for the members of each generation (i.e., parents, children), the two actor components and the two partner components were allowed to be correlated. Figure 1 shows the SRM measurement model for a four-person family, including the paths from the nine SRM components to the 12 observed relationship scores from the round-robin design. Also depicted are the individual and dyadic reciprocities and intragenerational similarity correlations.

Relation between SRM components justice and trust and problem behavior.   After having performed the SRM analyses described above, the SEM models were extended by including the latent problem behavior variables. Thus, the regression of these problem behavior variables on the SRM components could be assessed. Nonsignificant reciprocity and intragenerational similarity correlations were excluded from these extended models. Because of the similarity in perspective, the factor loadings of the father and mother reports on the latent problem behavior variable were set equal. This decision was empirically justified by the fact that, for all models, freeing all three reporters' loadings did not improve the model fit significantly ($p > .01$), while fixing all three loadings to be equal caused a significant deterioration of the model fit ($p < .01$). The parameters for Justice and Trust, as well as for the older and younger child, were estimated separately for internalizing and externalizing problem
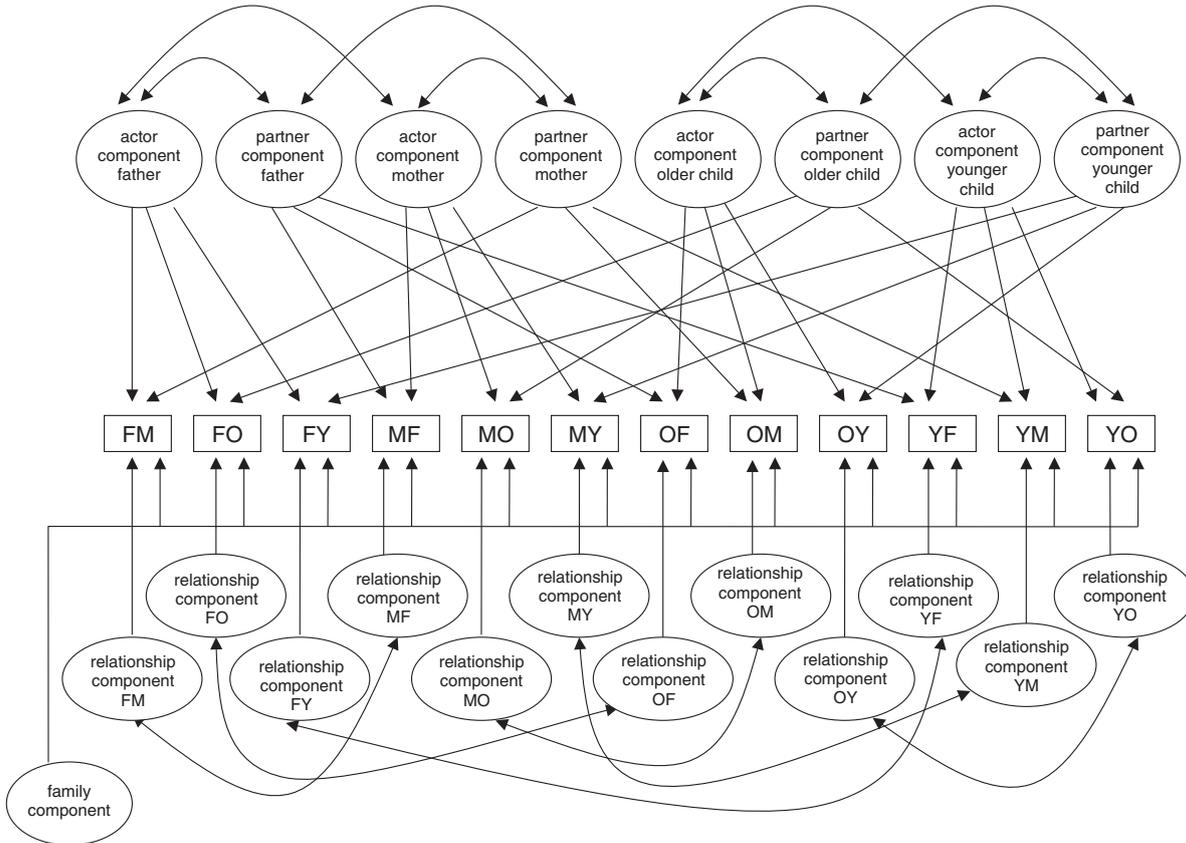
FIGURE 1 The social relations model: measurement model, individual and dyadic reciprocities, and intragenerational similarity correlations.
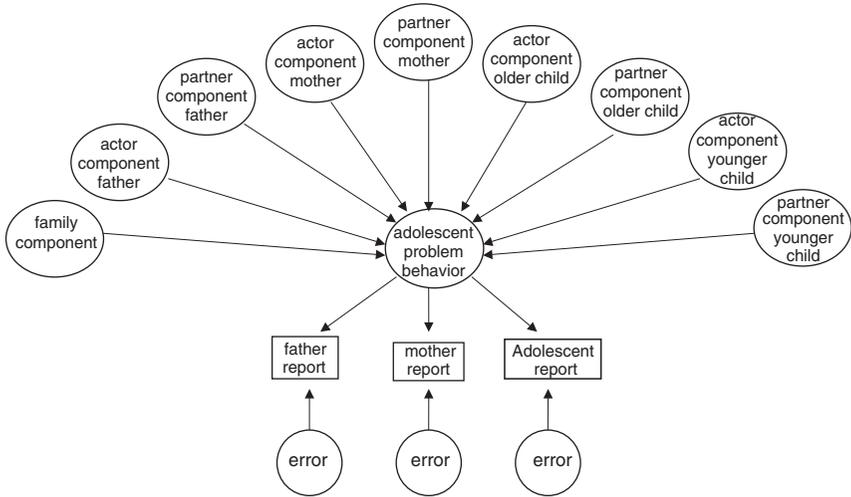*Note.* F, father; M, mother; O, older child; Y, younger child.

FIGURE 2 General SEM regression model for influence of social relations model components on adolescent problem behavior.

behavior. This resulted in eight models with which the impact of the SRM components regarding justice or trust on either the older or younger adolescent's internalizing or externalizing problem behavior was assessed. Note, that a model in which the problem behavior variable is regressed on all SRM components simultaneously is not identified. Because our main interest was in the impact of the family component, in the initial version of the eight models, we only estimated the regression of the problem behavior variable on the SRM family component. In subsequent versions of these models, we added the regression effects of other SRM components (actor and partner components) if they were significant and contributed to an improvement of the model fit. The improvement of fit was judged on the basis of χ^2 difference tests (criterion: $p < .05$). The SEM program LISREL 8 (Jöreskog & Sörbom, 1994) was used to estimate the above-mentioned parameters and regression effects. Figure 2 shows the general SEM regression model for the influence of the social relations model components on adolescent problem behavior.

RESULTS

Before presenting our results, we will first reformulate our hypotheses in terms of the SRM components. The first hypothesis (i.e., families can be

distinguished from each other on the focal dimensions of Justice and Trust) implies that we expected the SRM family component variances with regard to justice and trust to be statistically significant. The second hypothesis (i.e., whole-family levels of justice and trust are more strongly related to adolescent problem behavior than family members' tendency to perceive others as just/trustworthy or family members' tendency to be perceived as just/trustworthy) implies that we expected the SRM family components to be more strongly related to adolescent problem behavior than the actor and partner components. The third hypothesis (i.e., family scores with regard to justice and trust will show comparable patterns of negative correlations with adolescent problem behavior) implies that we expected both justice and trust to be negatively related to adolescent problem behavior. The fourth hypothesis (i.e., justice and trust are not differentially related to a particular type of adolescent problem behavior) implies that we expected the family component for justice/trust to be about equally strongly related to internalizing as to externalizing problem behavior.

To test the first hypothesis, the SRM family component variances regarding justice and trust were estimated along with the other SRM component variances. This was done in two separate SRM models (one for Justice and one for Trust) in which links with adolescent problem behavior variables were not yet included. In the final models, nonsignificant reciprocity and intragenerational similarity correlations were fixed at zero. For both the Justice and the Trust model, the chi-square test was significant, indicating a lack of fit (Justice: $\chi^2(50) = 135.28$, $p < .01$; Trust: $\chi^2(51) = 131.67$, $p < .01$). However, the comparative fit index (CFI; Bentler, 1990) was well above the .90 criterion for both models (Justice: .970, Trust: .955). The root mean square error of approximation (RMSEA) was .077 for Justice and .074 for Trust, whereas the non-normed fit index (NNFI) was .960 for Justice and .942 for Trust. Overall, these values suggest that both models fitted the data reasonably well.

Table 1 gives the LISREL estimates of the variances for the various SRM components. On the basis of their t values, one can test the significance of the variance estimates involved and thus the existence of corresponding components as real differences between families. In accordance with our first hypothesis, significant family component variances were found for justice and trust, indicating that the level of experienced justice and trust was greater in some families than in other families. In other words, families differed with respect to the level of perceived justice and trust, even when controlled for actor and partner components.

To test the second, third, and fourth hypothesis, eight SEM models were tested in which the effects of the SRM components for justice and trust on

TABLE 1

Variance Estimates for the Social Relations Model Analysis of NFRT Dimensions Justice and Trust: Family, Actor, and Partner Components.

Source of Variance	Role	Justice	Trust
Family		.03***	.04***
Actor			
	Father	.12***	.10***
	Mother	.10***	.09***
	Older child	.18***	.19***
	Younger child	.23***	.21***
Partner			
	Father	.02***	.03***
	Mother	.00	.00
	Older child	.02***	.01*
	Younger child	.01**	.01**

Note: NFRT, Nijmegen Family Relations Test.

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$, all two-tailed.

adolescents' internalizing and externalizing problem behavior were estimated.[1] Table 2 gives the standardized regression coefficients that were obtained from these analyses (values are obtained from the analyses in which the significant regression effects are estimated simultaneously). As can be seen, all eight coefficients between family components and problem behavior scores were highly significant (negative), indicating that family levels of justice and trust were strongly related to both the older and younger sibling's internalizing and externalizing problem behavior. In other words, adolescents from relatively less just or less

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[1] To check for possible overlap between the items of the NFRT and NPBL, we performed a series of confirmatory factor analyses. First, we specified a model with four factors: justice, trust, externalizing problems, and internalizing problems. We used parent reports of their oldest child. Before computing the total scores, we averaged the father and mother item responses. Each item was specified to load freely on the theoretically corresponding factor. Loadings on noncorresponding factors were set to zero. Only six out of these 75 loadings had modification indices >7 (the boundary mentioned by Jöreskog & Sörbom, 1994). These findings indicate that the items generally load as predicted, thus supporting the distinctness of the scales. Second, to further explore the distinctness of the constructs, we compared the fit of a model in which all factor correlations were estimated freely to models in which one or more factor correlations were restricted to be one. These analyses revealed that each additional restriction to one resulted in a significant fit deterioration (all p's < .000001). Altogether, these findings make it clear that the measures of justice and trust should be considered distinct from each other and from the measures of externalizing and internalizing problems.

TABLE 2

Estimated Relations (Standardized Regression Coefficients) between SRM Components Justice and Trust, and Adolescents' Internalizing and Externalizing Problem Behavior

	Internalizing Problems		Externalizing Problems	
	Older Child	Younger Child	Older Child	Younger Child
Justice				
Family	− .64*** [1]	− .45** [1]	− .69*** [1]	− .66*** [1]
Actor				
Father		− .32** [2]		
Mother		− .22* [3]		
Older child				
Younger child				
Partner				
Father				
Mother				
Older child	− .24* [2]		− .73*** [2]	
Younger child				− .75*** [2]
Trust				
Family	− .47*** [1]	− .74*** [1]	− .39** [1]	− .50*** [1]
Actor				
Father				
Mother				
Older child	− .28** [2]			
Younger child				
Partner				
Father				
Mother				
Older child			− .64** [2]	
Younger child				− .58** [2]

Note: SRM, social relations model.

*p ≤ .05; **p ≤ .01; ***p ≤ .001, all two-tailed; the numbers between brackets indicate the order of entrance into the SEM regression models; all explained variances were above 30%.

trustworthy families showed more internalizing and externalizing problem behavior.

Recall that in all eight models, chi-square difference tests were performed to examine whether estimating the effect of any of the other SRM components on problem behavior would lead to a significant improvement in model fit. Table 2 reveals that, in nearly all models, estimating the effect of one of the actor or partner components indeed led to a fit

improvement. Chi-square differences with $\Delta df = 1$ ranged from 3.89 to 50.22 (all p's < .05). Overall, however, it looks as if whole-family levels of justice and trust (i.e., the family components) are more strongly related to adolescent problem behavior than the actor or partner components. This tendency is seen from the fact that (a) the family component was the component most consistently (i.e., in all eight models) related to problem behavior, and (b) the family component on average explained 34% of the variance in adolescents' problem behavior scores, whereas the actor components *together* and the partner components *together* on average explained only 3% and 24%, respectively.

In accordance with our third hypothesis, the family components regarding justice and trust both showed comparable patterns of negative correlations with adolescent problem behavior. These components explained on average 38% (Justice) and 29% (Trust) of the variance in adolescents' problem behavior scores. On the basis of these amounts of variance explained, one could conclude that the family component regarding justice is more strongly related to adolescent problems than the family component regarding trust. In contrast with our fourth hypothesis, the family component regarding justice/trust did not seem to be equally strongly related to internalizing and externalizing problem behavior. Justice seemed to be somewhat more strongly related to externalizing problems, whereas Trust seemed to be somewhat more strongly related to internalizing problems. The family component for Justice explained on average 46% (externalizing) and 31% (internalizing) of the variance in adolescents' problem behavior scores. The family component for Trust explained on average 20% (externalizing) and 38% (internalizing) of the variance in adolescents' problem behavior scores.

Although no specific hypotheses regarding the role of birth order were formulated, associations between family justice and trust, on the one hand, and internalizing and externalizing problem behavior, on the other hand, appeared to be about equally strong for both siblings. Regression coefficients between family components and problem behavior were .55 and .59 on average for the older and younger sibling, respectively.

To examine possible age effects, we divided our sample of families into four groups on the basis of two dichotomous criteria: (a) whether or not the older sibling's age was above the older adolescents' median age; (b) whether or not the younger sibling's age was above the younger adolescents' median age. Comparisons using the LISREL multiple group comparison option (Jöreskog & Sörbom, 1994) revealed no statistically significant ($p < .05$) differences between the four groups, suggesting that the effects of family justice and trust on adolescent problem behavior did not depend on the adolescent's age or on the sibling's age. Possible gender

effects and family composition (i.e., two children, more than two children) effects were examined in a similar manner. Groups were formed on the basis of whether the older and younger child was a boy or a girl and next on whether the family had two adolescent children or more than two children. Again, no statistically significant differences ($p < .05$) between the groups were found, suggesting that the effects of family justice and trust on adolescent problem behavior did not depend on the gender composition of the family or on the number of children in the family.

In addition to the findings described above, our analyses revealed a number of other findings that were not directly related to our hypotheses. For example, the significant actor component variances (see Table 1) indicate that for each family member there were between-family differences in the tendency to perceive others as being just or trustworthy. The significant partner component variances indicate that for fathers, and older and younger siblings, there were reliable individual differences in the degree to which they, as partners, were reported to be just or trustworthy. The nonsignificant partner component variances for the mother indicate that the degree to which the mother was perceived as being just or trustworthy was about the same across families.

Furthermore, for both Justice and Trust, the actor–partner correlations (i.e., individual reciprocities) for the children were significant (r's = .41 and .30, respectively, for Justice; r's = .31 and .35, respectively, for Trust). Significant dyadic reciprocities were found for the husband–wife dyad (r's = .13 and .21 for Justice and Trust, respectively), the father–older sibling dyad (r's = .04 and .11 for Justice and Trust, respectively), and the older sibling–younger sibling dyad (r's = .07 and .24 for Justice and Trust, respectively). Significant intragenerational similarity correlations for Justice and Trust were found for the siblings' actor components (r's = .14 and .21 for Justice and Trust, respectively). For Justice, but not for Trust, also the siblings' partner components were significantly correlated ($r = .52$).

Finally, a few associations that were not explicitly hypothesized were found between SRM actor and partner components and adolescent problem behavior. In Table 2, it can be seen that, in addition to the family component, the older and younger child's partner components with regard to justice and trust were negatively related to their externalizing problems, indicating that children who were generally viewed as being less just/trustworthy were reported to have more externalizing problems. With regard to internalizing problems, only one such correlation was found: between the older child's partner component with regard to justice and his/her internalizing problems. On Justice, the parent actor components were negatively related to the younger child's internalizing problems, indicating that the more the parents tended to perceive the other

family members as being just, the fewer internalizing problems were reported for the younger child.

DISCUSSION

The general aim of the present study was to assess the association between family levels of justice and trust and adolescents' internalizing and externalizing problem behavior. To obtain a family group score that is unconfounded by individual characteristics, the SRM was applied to the analysis of interpersonal perceptions within the family. The dimensions of Justice and Trust were derived from the concept of Loyalty, which is a key concept in Boszormenyi-Nagy's clinically influential family systems theory (Boszormenyi-Nagy & Spark, 1984).

Our SRM analyses revealed that the extent to which family members perceived each other as being just or trustworthy was significantly determined by characteristics of the family as a whole (i.e., the family component). The significant family component variances that were found for justice and trust indicate that the degree of experienced justice and trust by family members differed on the family level. Our findings thus provide clear support for our first hypothesis that families can be distinguished from each other on Boszormenyi-Nagy's dimensions of Justice and Trust.

For both Justice and Trust, when looking at the standardized regression coefficients, amounts of variance explained, and consistency of the associations, the family component seemed to be the component most strongly associated with the older and younger sibling's problem behavior. Our results thus also confirm our second hypothesis that the family component variance with regard to justice and trust is more useful in predicting adolescent problem behavior than the individual component variances. In other words, adolescent problem behavior seems to be best predicted by the level of justice and trust within the family as a whole, rather than by family members' tendency to perceive others as just/trustworthy, or by family members' tendency to be perceived as just/trustworthy.

In accordance with our third hypothesis, family justice and trust showed similar patterns of associations with adolescent internalizing/externalizing problem behavior. On the basis of the average amount of variance explained in adolescents' problem behavior scores (38% and 29% for the family components of Justice and Trust, respectively), one could conclude that family justice is somewhat more strongly related to adolescent problem behavior than family trust. Note that, because separate models were tested for justice and trust, no statistical test could be

performed to determine the primacy of justice over trust. Our cautious conclusion of justice being more strongly related to adolescent problem behavior than trust is nevertheless in accordance with Mathijssen et al. (1998), who found that only for Justice and not for Trust, the number of negative (unfair) dyads within a family was positively related to adolescent problem behavior.

Our fourth hypothesis was that justice and trust would be about equally strongly related to internalizing as to externalizing problem behavior. This hypothesis could not be confirmed unreservedly. Justice seemed to be somewhat more strongly related to externalizing problems whereas Trust seemed to be somewhat more strongly related to internalizing problems. Note again, that we could not compare these associations statistically, because the effects of either justice or trust on either externalizing or internalizing problem behavior were estimated in separate models.

In general, our findings provide clear support for Boszormenyi-Nagy's family systems theory (Boszormenyi-Nagy & Spark, 1984). The significant family component variances underline Boszormenyi-Nagy's notion of the family as a group entity. Furthermore, the strong associations between these family components and adolescent problem behavior are in line with Boszormenyi-Nagy's assumption that problem behaviors are mainly rooted in characteristics of the family as a system, rather than in the psychology of the individual (Boszormenyi-Nagy & Spark, 1984). The somewhat stronger associations between family justice and problem behavior than between family trust and problem behavior provide support for Boszormenyi-Nagy's assumption regarding the ontogenetic primacy of justice. Less supportive for Boszormenyi-Nagy's theory was that family justice appeared to be somewhat more strongly related to externalizing problem behavior while family trust seemed to be somewhat more strongly related to internalizing problem behavior. Nevertheless, family justice and trust were found to be quite strongly related to both externalizing and internalizing problems (average standardized regression coefficients of $-.56$ and $-.58$, respectively), suggesting that low levels of family justice/trust may produce problems in both areas, as is assumed by Boszormenyi-Nagy (Boszormenyi-Nagy & Spark, 1984, p.176).

From our conceptual analysis of Justice and Trust, it appears that both concepts refer to affective properties of family relationships (Boszormenyi-Nagy & Spark, 1984). In this respect, the negative associations we found between family justice and trust and adolescent problem behavior are in line with a number of other studies that have reported negative associations between affective qualities of the family system (e.g., cohesion, warmth, support) and adolescent problem behavior (Farrell & Barnes, 1993; Farrington, 1994; Gorman-Smith, Tolan, Henry, & Florsheim, 2000; Henggeler,

Melton, & Smith, 1992; Rubin, Rubenstein, Stechler, Heeren, Halton, Housman, & Kasten, 1992; Tolan, Gorman-Smith, Huesmann, & Zelli, 1997).

Although the family component clearly appeared to be the component most strongly related to adolescent problem behavior, with regard to justice and trust, also the partner components of the older and younger sibling were significantly related to their respective levels of externaling problem behavior. A possible explanation for these findings is that adolescents who are generally perceived to be relatively unjust or untrustworthy by the other family members are probably treated less favorably by these family members, which in turn may lead to more externalizing problem behaviors. Such an unfavorable treatment by one's family members also leads to internalizing problem behaviors, but only with regard to justice and the older sibling.

On Justice, the parents' actor components were negatively related to the younger child's internalizing problems, indicating that the more the parents tended to perceive the other family members as being just, the fewer internalizing problems were reported for the younger child. However, the parent actor component was based on parent reports, while the adolescent problem behavior score was partly based on parent reports. Therefore, the associations between both could partly be due to shared rater variance.

Although we expected the adolescents' actor components to be less strongly related to adolescent problem behavior than the family component, we did not exclude to find some associations between these individual characteristics and adolescent adjustment. Surprisingly, however, only one significant association of this kind was found: older siblings who tend to distrust the other family members show more internalizing problems. This means that only in one case, support was found for Boszormenyi-Nagy's (Boszormenyi-Nagy & Spark, 1984) assumption that a lack of trust perceived from the other family members may lead to a swallowing of feelings of hurt, withdrawal, depression, or turning aggression against the self (i.e., internalizing problems). Overall, these findings indicate that an adolescent's level of problem behavior is not related to the extent to which he or she perceives the other family members to be just/trustworthy, at least not when whole-family levels of justice/trust are controlled for. A possible explanation for the absence of consistent associations between adolescents' actor components and problem behavior may be that the actor component reflects a certain response set (i.e., a tendency to give relatively high or low scores when completing a pen and paper questionnaire), rather than actual differences in the amount of justice or trust someone receives (or elicits) from the other family members. Our findings also suggest that the actor component does not reflect a relational schema (Baldwin, 1992) that predisposes one to perceive other

family members in a relatively positive or negative light. On the basis of schema theory and social information processing theory (Dodge, 1993), correlations between the adolescent's actor component and problem behavior would probably have been found if this was the case.

Also somewhat surprisingly, the parent partner components were not related to adolescent problem behavior, suggesting that an adolescent's level of problem behavior is not related to the extent to which the parents are perceived to be just/trustworthy. This finding seems to be in contrast with the many studies that have reported associations between parents' affective characteristics and adolescent outcomes (e.g., Ge, Conger, Lorenz, Shanahan, & Elder, 1995; Stice & Barrera, 1995). One possible explanation is that these studies have reported spurious associations that would not have been found if contextual effects of whole family functioning had been controlled for, like in the present study. Our findings suggest that processes at different levels of family functioning (i.e., individual, whole-family) should be taken into account when investigating associations between family characteristics and children's outcomes. Another explanation may be that the unique behavior of one parent to one child (i.e., the relationship component), rather than the behavior displayed to all family members (i.e., the partner component), is associated with this child's outcomes.

We should note that, because the present study was cross-sectional in nature, causal conclusions regarding the associations described above should be drawn cautiously. Instead of dysfunctional family characteristics (e.g., low levels of perceived justice or trust) causing adolescents' problem behavior, it is also possible that adolescents' problem behavior has a negative effect on family relationships and causes disturbance in the family system. In other words, it may not be excluded that the family component with regard to justice and trust is a result rather than a cause of adolescent problem behavior. Similarly, a reversed causal path may be responsible for the association between, for example, the adolescents' partner component and externalizing problems. These externalizing problems may be interpreted by family members as expressions of disloyalty toward the family system. Consequently, adolescents who show more externalizing problems may be perceived by their family members as relatively unjust/untrustworthy. Longitudinal studies are more adequate for disentangling the direction of effects between family justice and trust and adolescent problem behavior. Furthermore, research in behavior genetics (Plomin, DeFries, McClearn, & Rutter, 1997; see also Reiss, Neiderhiser, Hetherington, & Plomin, 2000) has shown various types of genotype–environment correlations. Therefore, we may not exclude the possibility that also the association between the family component and

adolescent problem behavior is influenced by a genetic factor. However, it is important to note that the SRM family component is quite different from the family environment measures for which genetic influences have been found. The latter measures almost exclusively are parenting or sibling measures. The SRM family component does not reflect a dimension of parenting or sibling relationship. It reflects an independent ''family-as -a-whole'' dimension that is equally shared by all members. At the moment, it is not clear how and to what degree such a measure could be influenced by the same genetic factors that also relate to adolescent internalizing and externalizing problem behavior. Note, that parents do not share genes (unless there was assortative mating), and that siblings only share 50% of their genes. Consequently, the similarity between *everyone* in the family is not easily explained by genetics. Finally, testing hypotheses about the genetic component would require a research strategy that combines a genetically informative design with the SRM approach. The only study we know that applied such a strategy (Manke & Plomin, 1997) unfortunately did not analyze associations between SRM components and measures of adolescent adjustment, nor did it estimate the family component.

Furthermore, we should note that the present findings were obtained using a sample of two-parent, middle-class Dutch families with at least two adolescent children. Future research should reveal whether our findings can be generalized to, for example, families with a different socioeconomic background, single-parent families, or families with younger children. Moreover, because of the 50% response rate, the sample may not be representative even of two parent Dutch families with two or more adolescents. In addition, the use of a community sample with relatively nonsevere problem behaviors implies that the present results pertain primarily to occasional sadness and ''trouble making'', rather than to depression and conduct disorder.

Finally, we should also note that participants completed each NFRT item for all family members before moving to the next item. At this stage, it is unclear how this response format may have influenced our results. First, this procedure may increase the similarity of scores a family member gives for the various partners, thus leading to inflated actor component variances. Second, this procedure may lead respondents to make relative comparisons among family members on each item, thus resulting in inflated relationship (error) variances. Third, actor and relationship variances may be unaffected because both tendencies cancel each other. However, we have no reason to assume that these processes could have affected the estimates of the links between the SRM components and adolscent problem behavior in this study.

In spite of the limitations mentioned above, the present study provides clear support for Boszormenyi-Nagy's notion that problem behaviors are mainly associated with characteristics of the family as a system, rather than with individual characteristics (Boszormenyi-Nagy & Spark, 1984). Our findings suggest that a family climate characterized by feelings of justice and trust indeed promotes adolescent adjustment. Given the fact that these dimensions have hardly been the focus of empirical research, they seem to deserve further attention in future research. Finally, the present study illustrates that the SRM is an ideal tool to derive a measure of whole-family characteristics that is unconfounded by individual characteristics. We have shown that, by applying the SRM and using the round-robin design, one can avoid the problems associated with the most commonly used instruments for assessing whole-family characteristics.

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