A LONGITUDINAL STUDY ON TRANSACTIONAL RELATIONS BETWEEN PARENTAL MARITAL DISTRESS AND ADOLESCENT EMOTIONAL ADJUSTMENT

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ABSTRACT

Using a cross-lagged effect model with 3 waves of data from a 6-year longitudinal study with 3-year intervals, transactional relations between parental marital distress and adolescent emotional adjustment were examined. The sample consisted of 531 parent-adolescent dyads. Results showed that marital distress as reported by parents and emotional adjustment as reported by adolescents were reciprocally related in a transactional model over time. This was principally true for girls and for late adolescents and young adults. For older adolescent girls, an almost full transactional model was found, whereas associations between marital distress and emotional adjustment were less strong for younger girls and were absent for boys.

INTRODUCTION

Parents not only influence their children, but children also affect their parents. Although this so-called bidirectional point of view (e.g., Bell, 1968; Bell & Chapman, 1986) is widely acknowledged, most studies thusfar focus on the effects of parents on children (e.g., Dunn & Plomin, 1990). Studies on transactional relations between parents and adolescents are particularly lacking (Rueter & Conger, 1998). In the present longitudinal study, we examine whether marital distress of parents and the emotional adjustment of adolescents and young adults are transactionally related and whether this differs according to adolescent gender and age group.

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This study was based on a combination of the bidirectional point of view and family systems theory. The bidirectional point of view has been well described in the theoretical literature and is in accordance with other theories purporting that parents and children mutually influence each other and can consequently contribute to change in each others' development (e.g., Bell & Harper, 1977; Bronfenbrenner, 1979; Peterson & Rollins, 1987).

Family systems theory regards the family as a system composed of the marital, parenting, parent-child, and sibling subsystems. Each subsystem influences, and is influenced by, the others (Minuchin, 1985). The family is thus considered as a complex, integrated whole, in which individual family members exert a continuous and reciprocal impact on each other (Cox & Paley, 1997). In their study on the effects of family relationships on adolescent adjustment, O'Connor, Hetherington, and Clingempeel (1997) describe how family systems theory qualifies and extends bidirectional models. Systems theory considers mutual influences within relationships, emphasizes contextual factors that modify these mutual influences, and underscores a developmental perspective.

In this study, we expect marital and child adjustment to be transactionally related. This is based on the bivariate viewpoint of reciprocal influences between parents and children, and on family systems theory of the interdependence between individuals and relationships. Further, this interdependence may be modified by such contextual factors as gender and may change over the family life course as a result of developmental changes.

Impact of Parental Marital Distress on Adolescent Adjustment

Research has consistently shown that marital and child adjustment regularly co-occur and it is broadly recognized that the quality of the interparental relationship is of great consequence for offspring development (Buehler et al., 1997; Cummings & Davies, 2002; Fincham, 1998). Marital conflict has been found to be predictive of both internalizing and externalizing problem behavior of children (see reviews in Emery, 1982; Grych & Fincham, 1990). Further, in line with a family systems view, distress in the marital dyad is likely to extend to other parts of the family system. These related family stressors include deteriorated parent-child relations (e.g., Erel & Burman, 1995), impaired parenting and parental depression (Krishnakumar & Buehler, 2000). These indirect or associated stressors of marital discord are referred to as spillover effects: problems in the marital realm spill over into the parenting system, thus transferring to the parent-child system.

child adjustment are limited, since most studies in this area are cross-sectional (Grych & Fincham, 2001).

Impact of Adolescent Adjustment on Parental Marital Distress

In contrast to the effect of the quality of the parental marriage on offspring adjustment, little is known about how offspring themselves may affect the interparental relationship (Cummings, Goeke-Moerey & Dukewich, 2001). Studies that did examine the influence of children on the parental marriage mainly concern differences in marital quality depending on children's age. Studies consistently report a curvilinear pattern over the family life course, with marital satisfaction at its lowest during children's adolescent years (e.g., Anderson, Russell, & Schumm, 1983). Thurnher (1976) found that adolescent children were the most often reported source of interparental disagreement, and many parents experience their children's adolescence as the most difficult period of parenting (Deković, Groenendaal, & Gerrits, 1996). Steinberg and Silverberg (1987) found that a substantial number of parents reported difficulties in adjusting to the adolescent's striving for individuation and autonomy, and related this to the often reported decline in marital happiness during children's adolescence.

A possible mechanism by which child adjustment affects the parental marriage is through deteriorated parent-child relations. That is, just like marital distress can spill over into the parenting and parent-child systems, thereby affecting child adjustment, the reverse is also possible. Additionally, according to a social-selection hypothesis, emotional problems such as depression play a role in the creation of interpersonal stress (e.g., Kim, Conger, Elder, & Lorenz, 2003). Thus, emotionally maladjusted adolescents may provoke stress in family relationships.

Gender Differences

Research findings concerning gender differences in the impact of the parental marriage on children are inconclusive (Davies & Lindsay, 2001). Based on some reviews in this field (e.g., Cummings & Davies, 2002; Snyder, 1998), there are indications that boys may typically react to parental marital distress by externalizing problems and girls may react by internalizing problems. Further, as described by Davies and Windle (1997), boys may be more vulnerable to family risk factors than are girls during childhood, whereas girls may be more at risk from family problems during adolescence. Various studies have reported that adolescent girls are more susceptible to relational problems as a

emotional problems (Crawford et al., 2001; Davies & Windle, 1997; Ge et al., 1995; VanderValk, Spruijt, DeGoede, Meeus, & Maas, 2004). Additionally, girls are more empathic than boys (Brody, 1996), which may explain their greater sensitivity to the quality of the interparental relationship. For instance, adolescent girls have been found to be more accurate perceivers of marital conflict (Harold & Conger, 1997).

Pertaining to the reverse effect of children on marriage, no studies could be found that consider gender differences. However, the fact that adolescent girls are more oriented toward care and more likely to become involved in the problems of others (Davies & Lindsay, 2001) may result in girls having a larger impact on the parental marriage than do boys. Furthermore, girls' greater relational orientation is possibly reciprocal, in that relationships may also be more subjugated by the emotional adjustment of girls.

Age Differences

Research findings on the impact of the parental marriage on adolescent adjustment are not consistent (Buehler, Anthony, Krishnakumar, & Stone, 1997). Children from different age groups may be affected by marital discord on different forms of adjustment (Cummings & Davies, 2002). Young children may be more prone to react to marital distress by externalizing difficulties, whereas adolescents may increasingly react by internalizing symptoms. In adolescence, the effects of the parental marriage on emotional adjustment probably differ for early as compared to late adolescents. Stronger effects of parental marital quality may be expected for late adolescents and young adults as a result of their increased involvement in intimate relationships. When young people are confronted with issues of mature intimate relationships, the quality of the interparental relationship becomes more salient to them. Further, older adolescents—as a result of their increased maturity—are more likely to be drawn into parental conflicts (e.g., Buchanan, Maccoby, & Dornbusch, 1991). Finally, recollection of earlier experiences with the parental marriage may appear in late adolescence and early adulthood in the form of a sleeper effect. Such an effect has also been found to play a role in adjustment problems of children of divorce (e.g., Hetherington, 1993; Wallerstein, Lewis, & Blakeslee, 2000). A developmental increase in the saliency of male-female relations may thus bring about a delayed effect of former interparental problems. Concerning age differences in child effects on the parental marriage, these may well become stronger during adolescence (e.g., Steinberg & Silverberg, 1987; Thurnher, 1976). Children's transi-

praisal of parents (Selfhe-Krenke, 1999). Consequently, parents may feel challenged to transform their parenting role, which in turn may affect their marital relationship. Moreover, the fact that adolescents and young adults are more likely than younger children to become involved in the parental marriage may not only result in a greater vulnerability to the interparental realm for older compared to younger adolescents, but may also result in a greater influence of these older adolescents themselves on the parental relationship.

This study examined the transactional relations between parental marital distress and the emotional adjustment of adolescents and young adults. We expected positive longitudinal associations between parental marital distress and youngsters' emotional adjustment in a transactional model (H1). Figure 1 shows the conceptual model guiding this hypothesis. We expected to find larger longitudinal effects of parental marital distress on the emotional adjustment of girls than of boys (H2). We formulated no hypotheses concerning gender differences in the *reversed* effects of adolescents' emotional adjustment on parental marital distress, but this was explored as well as age differences in the associations between marital distress and adolescent adjustment.

METHOD

Subjects

Data for this study were collected as part of an extensive multipurpose project, the "Utrecht Study of Adolescent Development (USAD) 1991-1997" (Meeus & 't Hart, 1993). This is a 6-year longitudinal study with 3 waves at 3-year intervals. In 1991 a national sample of 3,392 Dutch adolescents aged 12 to 24 was drawn from an existing panel of 10,000 households. The first wave sample is representative in terms of district, urbanization level, educational level, and religious affiliation, and can thus be regarded as representative of the Dutch indigenous adolescent population of the early 1990s. A random selection of 1,302 subjects was targeted as the sample for the longitudinal part of the study. Although the 3,392 subjects of the first wave gave informed consent to remain participants in the longitudinal study, 822 of them ultimately refused to take part in the second or third wave. Thus, the non-response rate between Wave 1 and 3 was 24%, and 1,302 subjects were selected from the 2,570 subjects eligible for the longitudinal study.

Figure 1
Conceptual Model: Three-Wave, Cross-Lagged Effect Model for Parent Marital Distress and Adolescent Emotional Adjustment (T1 = Wave 1, T2 = Wave 2, T3 = Wave 3)

their homes by trained interviewers and, afterwards, were given another questionnaire to fill out on their own and return to the research organization. Our data are derived from these self-report questionnaires.

For the analyses described in this article, we selected adolescents and parents from intact families who participated in all three waves of the study. In total, 693 parent-adolescent dyads met all our inclusion criteria. However, almost half of these families had more than one adolescent partaking in the study. To avoid violation of the assumption of independent observations, one adolescent per family was randomly selected (the target child). The analyses described in this article were performed on the resulting group of 531 parent-adolescent dyads. Our sample consisted of 279 adolescent girls (52.5%) and 252 boys (47.5%), 234 mothers (44.1%) and 297 fathers (55.9%). The mean age of the adolescents was 16.3 years at the first wave (SD = 3.2) and their parents' mean age was 45.3 years (SD = 6.3).

The families not included in the present study were in most respects similar to those who remained in the study. There were differences only in age: mean age of adolescents remaining in the study sample was lower (16.3 versus 17.8 years in the non-selected group). There were no differences in child gender between the two groups, nor did parental age, gender, and social class differ between the two groups. More important, although both mean emotional adjustment of adolescents as well as mean marital quality were higher in the selected (longitudinal) group compared to the non-selected group, analyses revealed that these differences were not significant (F = 2.7; p = .10 and F = 3.4; p = .07, respectively).

Measurements

Adolescent emotional adjustment was based on adolescent self-reports. This construct was made up of the following scales: (a) A shortened version of the General Health Questionnaire (GHQ; Goldberg, 1978; Kienhorst, Wilde, Bout, & Diekstra, 1990; Meeus, 1994), measuring the degree to which psychological stress and depression had recently been experienced. This measure consists of 2 subscales: psychological stress (6 items), and depression (4 items). On a 4-point scale, the adolescents indicated to what extent they experienced various symptoms (e.g., feeling tense and nervous, feeling unhappy and dejected) during the past four weeks (1 = much more than usual to 4 = not at all). Internal consistencies of both scales were high (alphas across waves ranged from .88 to .90 for psychological stress and from

subscale. (b) The Cantril ladder (Cantril, 1965) for measuring general well-being and happiness. On a 10-point scale, respondents indicated how they generally felt (from 1 = very bad to 10 = very well). (c) The consideration of suicide. Youngsters indicated on a 4-point scale whether they had considered committing suicide during the last 12 months (1 = never to 4 = very often) (Diekstra et al., 1991). Although the different measures that constitute adolescent emotional adjustment are ascertained at different time frames, the intercorrelations are high. Because we wanted to check whether we could speak of one trait aspect of emotional adjustment irrespective of time, an exploratory factor analysis was conducted with the four scale scores as variables. A single-factor solution was obtained, explaining 58.8% of the total variance at the first wave; loadings were .60 and higher (see also Helsen, Vollebergh, & Meeus, 2000). Thus, the separate measures could be regarded as good indicators of adolescent emotional adjustment. For the analyses of the present study, each adolescent was assigned a sum score of the above scales.

Marital distress was based on parents' self-reports. It was made up of the following items: (a) General marital satisfaction: on a 7-point scale, parents indicated how unsatisfied they were with their marriage (1 = quite satisfied to 7 = very unsatisfied) (Spruijt & DeGoede, 1997); (b) Divorce proneness: parents indicated on a 4-point scale whether they had seriously considered a divorce during the last five years (1 = yes, several times to 4 = no, never) (Spruijt & DeGoede, 1997); (c) Indication of marital problems: for each of 13 items, parents indicated the degree to which certain problems were applicable to their present relationship (from 10 = very much disagree to 100 = very much agree). Marital problems pertained to such factors as lack of communication, quarrels about the children, quarrels about money, and sexual problems (see also Spruijt, 1993). These 13 items were highly interrelated (alphas across waves ranged from .95 to .99); thus, mean scores were derived for each parent. Although the separate measures are based on different time frames, marital satisfaction, divorce proneness, and indication of marital problems were fairly well interrelated (correlations ranged from .20 to .45), indicating that they are all aspects of a latent marital distress construct. An exploratory factor analysis was conducted with the three scales as variables. A single-factor solution was obtained, explaining 54% of the total variance; loadings were .60 and higher (at Wave 1). The various items can thus be regarded as good indicators of the marital distress construct.

To test our conceptual model (Figure 1), we used structural equation modeling (AMOS; Arbuckle, 1997). In all models, each of the three indicators of parental marital distress and of adolescent emotional adjustment functioned as manifest indicators for the latent constructs of marital distress and adolescent adjustment (Figure 1).

We first tested our proposed transactional model on parental marital distress and adolescent emotional adjustment for the total sample. Chi-square difference tests were used to compare the "full" conceptual model to a series of nested, theoretically meaningful alternative models (Bollen, 1989). In step 1, a transactional model was tested. As depicted in Figure 1, this model specified the autoregressive effects (i.e., stability of the constructs over time), the effect from parental marital distress to adolescent emotional adjustment, and the effect from adolescent emotional adjustment to parental marital distress. In step 2, we analyzed a model specifying the autoregressive/stability effects as well as the unidirectional effect of marital distress on adolescent adjustment. In step 3, a model was analyzed specifying the autoregressive/stability effects and the unidirectional effects of emotional adjustment on marital distress. In the final step, the base model was analyzed. This is a so-called stability model, in which only the autoregressive effects were specified, hypothesizing that cross-lagged associations between the marital distress of parents and the emotional adjustment of adolescents and young adults do not exist. All models were nested within the transactional model (model 1), and were therefore comparable to this model.

To examine possible age and gender differences, we then tested the model that fitted best for the total group in several multigroup analyses in AMOS. First, we tested whether the model differed between boys and girls, and second, we examined possible differences between age groups. We compared two age groups: young and middle adolescents, aged 12-17 years (n = 357) at Wave 1, and late- and post-adolescents, aged 18–24 years (n = 174) at Wave 1. This is a meaningful distinction for Dutch youth, because in the Netherlands, mean age at which adolescents start mature intimate relationships is seventeen (Spruijt, 1993). Consequently, the age groups we use in the analyses roughly separate young people who are involved in mature intimate relationships from those who are not. For both multigroup analyses, we compared two nested models: a restricted model, in which all estimated parameters were required to be equal across groups, and a non-restricted model, in which all parameters were allowed to differ between groups.

a single informant may be upwardly biased. Therefore, error terms of parallel indicators (e.g., Wave 1 adolescent psychological stress and the same indicator at Waves 2 and 3; parent marital satisfaction at Waves 1, 2, and 3) were allowed to co-vary (Thomson & Williams, 1984).

RESULTS

Descriptives

Table 1 provides the correlations between parental marital distress and adolescent emotional adjustment at the three waves. For reasons of parsimony, correlations between factor scores in SPSS were used, whereas we used all separate indicators and latent constructs for the structural equation models in AMOS. Correlations are shown for the total group and for adolescent gender and age groups separately. These bivariate correlations show that parental marital distress and adolescent emotional adjustment may be transactionally related and that there are considerable gender and age group differences. Structural equation modeling will shed more light on the total structure of the associations and on the interrelations over time.

Structural Equation Analysis

Hypothesis 1: Transactional model. Table 2 presents the results of the nested modeling comparisons for the total sample. Comparisons disclosed that the full transactional model provided a significantly better fit to the data than the stability model, which contained only the autoregressive paths ($\Delta\chi^2 = 9$, $\Delta df = 4$, $p = .029$). This means that parental marital distress and adolescent emotional adjustment are significantly associated over time when (intrapersonal) stability effects have been taken into account. However, the transactional model did not provide a significantly better fit to the data than either of the unidirectional models ($\Delta\chi^2 = 4$ and 4.8 for the transactional model compared to unidirectional models 1 and 2, respectively, $\Delta df = 2$, $p = .135$ and .091). Inspection of the parameter estimates of the transactional model revealed that from Wave 1 to Wave 2, there was a significant effect of adolescent emotional adjustment to parental marital distress ($\beta_{3.2} = .10$, $p < .05$), but *not* from marital distress to emotional adjustment ($\beta_{4.1} = .01$). From Wave 2 to Wave 3, the reverse pattern emerged, that is, a significant path from marital distress to adolescent emotional adjustment ($\beta_{6.3} = .12$, $p < .05$), but *not* from emotional

Bivariate Correlations between Parental Marital Distress and Adolescent Adjustment, for the Total Group and for Adolescent Gender and Age Group Separately

	1	2	3	4	5	6
1. Marital Distress T1						
Total group	–	.56**	.52**	.11*	.05	.05
Boys	–	.54**	.55**	.00	.02	.01
Girls	–	.57**	.48**	.18**	.07	.10
Early/middle adolescence	–	.57**	.50**	.16**	.04	.04
Late/post adolescence	–	.53**	.55**	.02	.08	.08
2. Marital Distress T2						
Total group		–	.58**	.13**	.10*	.17**
Boys		–	.58**	.00	.08	.00
Girls		–	.57**	.24**	.14*	.20**
Early/middle adolescence		–	.57**	.14**	.11*	.15**
Late/post adolescence		–	.62**	.14	.08	.22**
3. Marital Distress T3						
Total group			–	.14**	.07	.13**
Boys			–	.05	.04	.13*
Girls			–	.22**	.11	.14*
Early/middle adolescence			–	.18**	.12*	.17**
Late/post adolescence			–	.05	.01	.06
4. Adolescent Adjustment T1						
Total group				–	.43**	.31**
Boys				–	.41**	.27**
Girls				–	.43**	.32**
Early/middle adolescence				–	.41**	.27**
Late/post adolescence				–	.50**	.42**
5. Adolescent Adjustment T2						
Total group					–	.35**
Boys					–	.36**
Girls					–	.34**
Early/middle adolescence					–	.39**
Late/post adolescence					–	.27**
6. Adolescent Adjustment T3						
Total group						–
Boys						–
Girls						–
Early/middle adolescence						–
Late/post adolescence						–

Note. Total group $N = 531$; boys $n = 252$, girls $n = 279$; early/middle adolescence (age 12-17 years at T1) $n = 357$, late/post adolescence (age 18-24 years at T1) $n = 174$.
*$p < .05$, **$p < .01$ (because of different group sizes, correlations of the same magnitude can differ in level of significance).

Search for the Best Model for the Total Sample

Estimated Model	Comparisons of Hierarchically Nested Models				
	χ^2	*df*	$\Delta\chi^2$	Δdf	*p*
Transactional model	196.5	161	–	–	–
"Zigzag" model	196.7	163	0.2	2	.900
Unidirectional model 1	200.5	163	4.0	2	.135
Unidirectional model 2	201.3	163	4.8	2	.091
Stability model	205.5	165	9.0*	4	.029

Note. Total sample: $N = 531$. Transactional model = model with cross-lagged paths; unidirectional model 1 = model with effects from parents' marital distress to adolescents' adjustment; unidirectional model 2 = model with effects from adolescents' adjustment to parents' marital distress; stability model = model with autoregressive paths only. The "zigzag" model contains an effect from adolescent emotional adjustment at Wave 1 to parental marital distress at Wave 2, but not from the second to the third wave, and an effect from parental marital distress at Wave 2 to adolescent emotional adjustment at Wave 3, but not from the first to the second wave. *Statistically significant change in chi-square ($\Delta\chi^2$, Δdf, $p < .05$) of model compared to transactional model.

adjustment to marital distress ($\beta_{5.4} = .00$). These results indicate that a "zigzag" model, with a path from Wave 1 emotional adjustment to Wave 2 marital distress, and from Wave 2 marital distress to Wave 3 emotional adjustment, would probably provide the best fit to the data. We tested this so-called "zigzag" model and it fitted the data well: chi-square statistics, χ^2 (163, $n = 531$) = 196.7, and it fitted the data better than one of the unidirectional models (see Table 2; no fit comparison statistics because these models are not nested). Although the transactional model did not fit the data better than the "zigzag" model ($\Delta\chi^2 = 0.2$, $\Delta df = 2$, $p = .90$) we decided to use the transactional model, since this model captured both the effect from marital distress to emotional adjustment and the reversed effect. Moreover, for our further multigroup analyses, we needed the full transactional model to examine whether different paths would be significant for different subgroups.

Table 3 provides the maximum-likelihood estimates and the fit statistics for the transactional model. This model provided a good fit to the data, as indicated by the chi-square statistic, χ^2 (161, $n = 531$) = 196.5, the goodness-of-fit indices (GFI = .97; CFI = .99), and the root mean square residual (RMSR = .02). However, as described above, not all the effects between parental marital distress and emotional adjustment of adolescents and young adults were significant. This indi-

Standardized Maximum-Likelihood Estimates and Fit Coefficients for Transactional Model, for Total Sample and for Multigroup Analyses with Adolescent Gender and Age Group

Parameter	Total	Gender		Age Group at T1	
		Boys	Girls	12-17	18-24
Stability Paths					
Distress T1 to T2 (β 3.1)	.70**	.69**	.68**	.73**	.78**
Distress T2 to T3 (β 5.3)	.87**	.92**	.84**	.75**	.91**
Adjustment T1 to T2 (β 4.2)	.47**	.37**	.48**	.43**	.58**
Adjustment T2 to T3 (β 6.4)	.73**	.66**	.75**	.43**	.31**
Correlation					
Distress T1 - Adjustment T1 (Ψ 2.1)	.10*	.01	.16*	.14*	.03
Cross-Lagged Paths					
Adjustment T1 to Distress T2 (β 3.2)	.10*	.02	.21**	.07	.14*
Distress T1 to Adjustment T2 (β 4.1)	.01	.00	.01	.01	.08
Adjustment T2 to Distress T3 (β 5.4)	.00	.01	.02	.03	.16*
Distress T2 to Adjustment T3 (β 6.3)	.12*	.00	.17*	.13*	.20*
Fit Coefficients					
χ^2	196.5	458.1		488.4	
df	161	318		318	
GFI	.97	.93		.92	
CFI	.99	.96		.95	
RMSR	.02	.03		.03	

Note. See Figure 1 for path numbers.

cates that our first hypothesis is partly supported: there are positive longitudinal associations between parental marital distress and youngsters' emotional adjustment. We did not find a full transactional model, because not all the cross-lagged paths were significant.

Hypothesis 2: Gender differences. To test our second hypothesis, we performed a multigroup analysis in AMOS. We first tested a non-restricted multigroup model, in which all parameter estimates were allowed to differ between boys and girls. This model fit the data well: χ^2 (318, $n = 531$) = 458.1, goodness-of-fit indices (GFI = .93; CFI = .96), and root mean square residual (RMSR = .03). It fitted the data significantly better than a restricted model, in which all parameter estimates were required to be equal across the groups ($\Delta\chi^2 = 200.4$, $\Delta df = 68$, $p < .05$). Inspection of the parameter estimates in Table 3 reveals that for girls, the associations between parental marital distress and their emotional adjustment were much stronger than for boys. Our second

tional adjustment are greater than on boys' adjustment, was confirmed, although not all the cross-lagged effects were significant. Here, too, we can speak of a transactional model over time.

Explorative Analyses on Age Differences

Next we performed a multigroup analysis to examine whether the associations differed for early and middle adolescents compared to late adolescents and young adults. A non-restricted multigroup model fitted the data well: χ^2 (318, n = 531) = 488.4, goodness-of-fit indices (GFI = .92; CFI = .95), and root mean square residual (RMSR = .03). It also fit the data better than a restricted model ($\Delta\chi^2$ = 227.3, Δdf = 70, $p < .05$). The parameter estimates in Table 3 reveal that a different pattern of associations between parental marital distress and adolescent adjustment emerged for the two age groups. All cross-lagged effects were larger for the older adolescents, and most were significant, while for the younger adolescents, only one cross-lagged effect was significant. The transactional model of parental marital distress and youngsters' emotional adjustment can therefore be almost accepted for older but not for younger adolescents. The associations between marital distress of parents and emotional adjustment of adolescents did not diminish over time, but became stronger.

Restricted Multigroup Model on a Combination of Gender and Age Groups

The results of the previous analyses demonstrated that it would be most informative to examine multigroup analyses with four groups, based on a combination of gender and age groups. However, given the limited group sizes, it was not possible to test more than two groups within a multigroup analysis with the present transactional model. That is, three observed variables of each construct were obtained for all three waves and owing to the number of parameters that need to be estimated relative to the sample size (Bentler & Chou, 1987; Bollen, 1989), it would not be reliable to compare more than two groups within one analysis. This was solved by analyzing a much restricted multigroup model on a combination of gender and age group, in which only the cross-lagged paths were allowed to vary. The results of this restricted model are shown in Table 4. For both younger and older boys, none of the effects were significant. For girls from the younger age group, only the path from Wave 1 adolescent adjustment to Wave 2 parental marital distress was significant ($\beta_{3.2}$ = .15, $p < .05$). For girls from the older age group, however, almost all cross-lagged paths

Standardized Maximum Likelihood Estimates and Fit Coefficients of Transactional Model for Multigroup Analysis with a Combination of Adolescent Gender and Age Group

	Younger Boys	Older Boys	Younger Girls	Older Girls
Cross-Lagged Paths				
Adjustment T1 to Distress T2 (β 3.2)	.02	.09	.15*	.20*
Distress T1 to Adjustment T2 (β 4.1)	.08	.12	.01	.00
Adjustment T2 to Distress T3 (β 5.4)	.00	.01	.02	.21*
Distress T2 to Adjustment T3 (β 6.3)	.12	.06	.14	.28*

Note. Because of limited group sizes, all parameters in this transactional model were restricted to be equal across groups, with the exception of the cross-paths, which were the paths of interest. Early/middle adolescent boys (age 12-17 years at T1) n = 159; late/post adolescent boys (age 18-24 years at T1) n = 93; early/middle adolescent girls (age 12-17 years at T1) n = 198; late/post adolescent girls (age 18-24 years at T1) n = 81. Fit coefficients: χ^2 = 1666.66; df = 838; GFI = .80; CFI = .78; RMSR = .04.
*$p < .05$

were significant. There was a significant path from Wave 1 adjustment to Wave 2 marital distress ($\beta_{3.2}$ = .20, $p < .05$), from Wave 2 adjustment to Wave 3 marital distress ($\beta_{5.4}$ = .21, $p < .05$), and from Wave 2 marital distress to Wave 3 adjustment ($\beta_{6.3}$ = .28, $p < .05$).

DISCUSSION AND CONCLUSION

In the present study, the reciprocal relations between parental marital distress and the emotional adjustment of adolescents and young adults were examined. Consistent with our initial presumptions, we found transactional longitudinal associations between marital distress as reported by parents and emotional adjustment as reported by adolescents and young adults.

Our first hypothesis, that positive associations exist between parental marital distress and youngsters' emotional adjustment, was partly supported. A "zigzag" model fit our data best: there was a significant effect from Wave 1 emotional adjustment to Wave 2 parental marital distress, as well as a significant effect from Wave 2 marital distress to Wave 3 adjustment. Thus, disharmony in the marital relationship and

of association appears to change depending on the life stage of adolescents and young adults.

Our second hypothesis was also partly supported: the zigzag pattern appeared to be a "girl model" only. Third, with regard to adolescent age group, results denote that the transactional model we hypothesized applied especially to the older age group of late adolescents and young adults. Finally, for a combination of adolescent gender and age group, a restricted multigroup model showed that the stronger transactional relations in the older age group applied essentially to girls.

Although the results of this investigation partly support our initial presumptions, several aspects of the findings merit discussion. First, transactional relations between parental marital distress and adolescent emotional adjustment were significant for girls only. The finding that the adjustment of girls and parental marital distress are more strongly related as compared to boys is in line with various other studies. Our study uniquely contributes to these findings by demonstrating that these stronger relations pertain to transactional effects as well. Girls display a larger vulnerability to relational problems and a stronger social sensitivity, and they are more accurate perceivers of the quality of the parental relationship (Harold & Conger, 1997), resulting in stronger associations between their psychological condition and interparental distress (Davies & Lindsay, 2001; Davies & Windle, 1997; VanderValk, Spruijt, DeGoede, Meeus, & Maas, 2004). Moreover, it has been found that adolescent males draw apart earlier from the family than do females, thus protecting them from internalizing problems related to marital distress (Crawford et al., 2001). In addition, results of this study suggest that the larger relational orientation and interpersonal involvement of girls may be reciprocal. Thus, relationships may be more subjugated by the adjustment of girls, because girls are more involved in them. These mutual associations between the emotional adjustment of girls and marital distress of the parents may occur through mutual spillover effects. That is, emotional adjustment of adolescent girls, as well as interparental disharmony, may spill over into the parent-child system, thereby affecting each other.

A second aspect of our findings that merits additional discussion is that, from Wave 1 to Wave 2, only the unidirectional effect of emotional adjustment to marital distress was found and not vice versa, and bivariate associations were stronger from the second to the third wave. Further, transactional relations were strongest for girls in late adolescence and young adulthood. Although these points are addressed below, we realize they require further investigation.

of girls from Wave 2 to Wave 3 indicates that girls may be especially sensitive to parental marital distress once they are more mature. It may be that as girls reach young adulthood, when they themselves become involved in intimacy development (Orlofsky, 1993) and in developing steady intimate relationships, that they only then become fully aware of interparental disharmony. After all, the marriage of their parents is their most salient example. Further, as described in the introduction, delayed effects of interparental problems may appear in late adolescence, in the form of sleeper effects. In addition, older children may be more sensitive to adult problems (Cummings & Davies, 2002), and they are more likely to become involved in the interparental marriage and to be drawn into parental disputes or to mediate between parents (e.g., Buchanan, Maccoby, & Dornbusch, 1991). The findings of this study are similar to those of Crawford et al. (2001), who found girls in late adolescence to be most sensitive to parents' marital problems, as compared to boys and to younger girls. They suggest that, apart from girls' greater relationship orientation and increased sensitivity to relationships, the different coping styles of men and women can offer some explanation. That is, women are inclined to ruminate more in the face of interpersonal stress, possibly resulting in increased internalizing symptoms. Men, in contrast, are more inclined to distract themselves and disengage from interpersonal stress. These different coping styles may add to a stronger association of interpersonal stress and internalizing symptoms for adolescent girls.

The effect of girls' adjustment on parental marital distress may indicate that important transformations during adolescence can affect the well-being of their parents (Silverberg & Steinberg, 1990). Since parental well-being is strongly related to marital satisfaction (e.g., Krishnakumar & Buehler, 2000; VanderValk, Spruijt, DeGoede, Meeus, & Maas, 2004), the emotional adjustment of girls may indirectly affect the interparental relationship. In addition, adolescence is often a time of increased evaluation and reappraisal among parents. That is, parents may regard their girls' emotional adjustment as indicative of their parental accomplishments. This is in line with a study by Ryff, Lee, Essex, and Schmutte (1994), who describe this period for parents as a time of reflection about how their children have "turned out." This reflection is likely to have an impact on the interparental relationship. The emotional adjustment of girls, signifying how well daughters are mentally prepared or whether they are sufficiently resilient to function as autonomous persons, may thus have a considerable impact on the marital satisfaction of their parents. It may well be that the sense of

other domains of adjustment, such as vocational. This is consistent with frequently reported findings with regard to different gender socialization. That is, girls are typically more appreciated for their social and relational skills, whereas boys are more appreciated for their so-called instrumental skills (e.g., Top, 1992). As a consequence, it is possible that the parental marriage is more likely to be affected by how girls *feel,* or by the inner world of girls, and by how well boys *do,* or by boys' accomplishments in the outer world. This would be interesting to examine in future research.

Several limitations of this study merit discussion. First, due to the limited sample size, we were not able to examine alternative transactional models with smaller subsamples (Bentler & Chou, 1987; Bollen, 1989). Our findings indicate that bivariate relations may be influenced by developmental changes. It will be instructive to examine more closely the pattern of influence between marital distress and the adjustment of adolescents from different age groups and/or developmental levels. Further, the associations we found in this study are robust but small. This is also due to the limited sample size. Moreover, the constructs we used have high stability over time (ranging from .47 to .73 for emotional adjustment and from .70 to .87 for marital distress). As a result, cross-effects over time are difficult to find. The fact that we *did* find significant cross-paths indicates that they really point to meaningful effects. In addition, although the effects for the total sample are small, effects in the subsample of older adolescent girls are substantial. Secondly, we recognize that our conclusions are limited to the extent that our data covered relatively lengthy time intervals. As noted by Davies and Windle (2001), these data may not be able to sensitively capture many dynamic changes. Thirdly, although the hypotheses were tested with longitudinal data in order to shed light on the direction of effects, even longitudinal data cannot truly demonstrate causality, only reveal temporal precedence (e.g., Steinberg & Silverberg, 1987). Finally, future research would be very useful to the extent that it would focus more on the processes accounting for the findings in this study. One possible phenomenon likely to play a role is the *spilling over* from adolescent adjustment as well as marital adjustment into the parenting and parent-child subsystems.

Despite these limitations, this study contributes to the literature in several ways. First, by using longitudinal data, we were able to test several hypotheses with regard to transactional relations between parental marital distress and youngsters' emotional adjustment. To our

Second, our data were derived from two informants. Parents reported on their marital distress, and adolescents and young adults reported on their emotional adjustment. Hence, although the effects between the two concepts were small, they are certainly meaningful, because these concepts were based on reports from different informants. This also minimized the chance that the significant findings are due solely to common source variance.

In summary, marital distress as reported by parents and emotional adjustment as reported by adolescent girls are related in a transactional model over time. These transactional relations differ according to adolescent girls' age. Our findings suggest that girls' greater sensitivity to interpersonal problems may be reciprocal and that the parental marriage is still associated with adjustment for girls in late adolescence and early adulthood.

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